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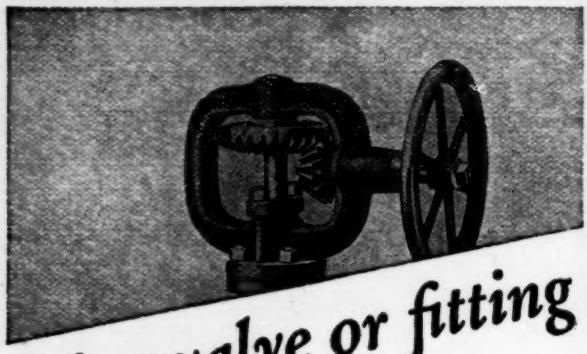

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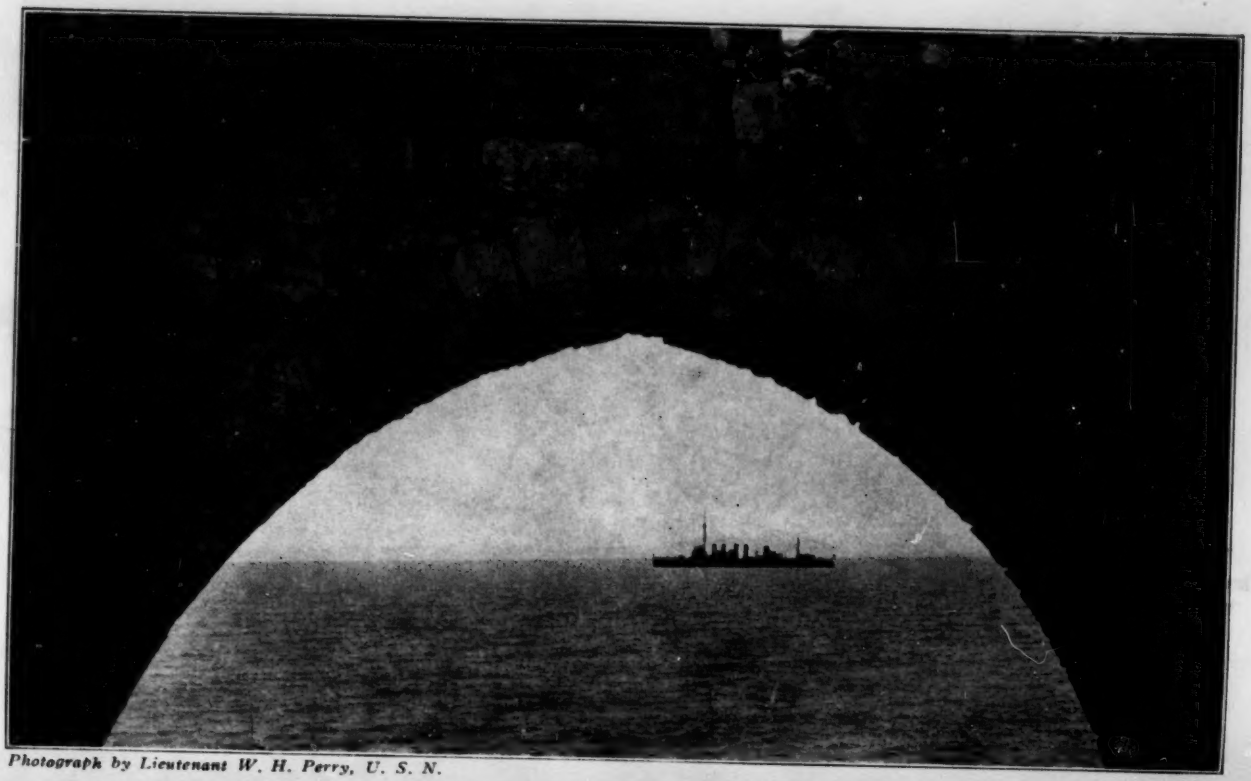

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U. S. S. "LITCHFIELD," FROM THE RUINS OF KORGHAZ CASTLE, GULF OF MERSINE

UNITED STATES NAVAL INSTITUTE PROCEEDINGS

VOL. NO. 51, NO. 2 FEBRUARY, 1925 WHOLE NO. 264

PROMOTION OF OFFICER PERSONNEL

CAN SERVICE REQUIREMENTS BE OBTAINED WITHOUT INJUSTICE TO INDIVIDUALS?

BY CAPTAIN E. H. CAMPBELL, U. S. NAVY

CONGRESSIONAL and service attention is again concentrating on the ever-present probem of development of a system of promotion of officer personnel by which the needs of the service may be secured economically and at the same time unjust or unnecessary injury to individuals may be avoided.

The present system of selection up with age-in-grade retirement has not as yet evoked any considerable amount of adverse criticism. The elimination feature has not been called into play to any great extent. Due to various causes there has been no stagnation in promotion. The provision of the law which relegates officers to the retired list, if they have not been promoted out of the grades of captain, commander and lieutenant commander by the time they reach the ages of fifty-six, fifty, and forty-five, respectively, has not affected officers who have not already been passed over by the Selection Board.

But the time is close at hand when officers will be retired by operation of law for the reason that they have reached the prescribed ages and before they have reached a point high enough on the list in their grade for the Selection Board reasonably to consider them for advancement.

If the law stands as it is, the Navy will lose officers with very high professional standing, solely for the reason that when they entered the Naval Academy they were near the top of the age

U. S. S. "LITCHFIELD," FROM THE RUINS OF KORGHAZ CASTLE, GULF OF MERSINE

Photograph by Lieutenant W. H. Perry, U. S. N.

limit for admission. It will not be for comparative lack of merit, which would be the logical basis for elimination, but for the sole reason that they are one or two years older than other officers of high professional standing who are above them on the list, and whose professional standing is too high to warrant the Selection Board passing them over. The officers who are about to retire under these conditions are innocent victims of a defective system.

There must be elimination from the various grades if the necessary regular flow of promotion is to be obtained. This cannot be avoided, but there surely must be some workable system by which it can be done without the element of chance entering into it. Chance as to relative age of contemporaries on the list, as in the present age-in-grade retirement system, or chance as to relative size of class, as would apply if the system of retirement for length of service were to be put into effect.

In an effort to contribute to the material for discussion along this line the following is submitted:

Any system of promotion of officer personnel should provide for the following:

(a) Total authorized number of officers.
(b) Distribution of officers in the various grades.
(c) Regular flow of promotion.
(d) Attainment of flag rank several years before retirement.

Regarding (a) total authorized number of officers: The present law bases this as four per cent of the total authorized enlisted strength of 137,485 men, or 5,499 line officers. No change is recommended in the present law in this respect.

Regarding (b) distribution of officers in the various grades: This is regulated by present law by prescribing a percentage of total number of officers for each rank, or one per cent flag rank, four per cent captain, seven per cent commander, fourteen per cent lieutenant commander, thirty-two and one-half per cent lieutenant, and forty-two and one-half per cent lieutenant (j.g.) and ensign. No changes are recommended in the present law in this respect.

Regarding (c) regular flow of promotion: The system of promotion should ensure that on an average officers entering at the bottom will reach certain ranks in certain definite intervals of time.

Promotion by seniority does not accomplish this, due to varying sizes of classes entering at the bottom of the list, resulting in "humps" along the line of promotion, as were experienced prior to 1899 when this system of promotion was in effect. This system has the further defect of delaying promotion to flag rank until nearly the time for retirement.

Some system of elimination is necessary in order to ensure regular promotion from rank to rank.

Two systems of elimination have been tried: (a) elimination by selection out combined with promotion by seniority, and (b) age-in-grade retirement combined with selection for promotion.

System (a) was repealed by Act of Congress and change made to system (b). System (b) is now up for criticism with possibility of effort being made to substitute some other system for it.

The criticisms directed against each system are largely inspired by the personal interests of those who criticize, or by apparent injustice done to certain individuals who have been adversely affected by the elimination feature of the law. The effect on certain taxpayers produced by the knowledge that able-bodied naval officers are being transferred from the active list to the retired list, for no apparent reason other than to provide promotion for other officers, and who continue to draw a salary from the government for the remainder of their lives, which to them does not appear to be earned, also has its reaction on Congress and must be overcome.

The discrimination against individuals by the Selection Board in the matter of promotion cannot be avoided without resorting to straight promotion by seniority without elimination. The defects of this system are so evident as not to warrant serious consideration. It is necessary that individual interests be sacrificed for the good of the service as a whole, if any effective system of promotion is to be obtained.

The injurious psychological effect caused by the transfer of able-bodied officers to the retired list might partially be remedied by transfer to the Fleet Naval Reserve of such officers as are eliminated from the active list for the purposes of regulating promotion, instead of placing them on the retired list. The retired list would then consist only of officers physically unfit for active duty either on account of disability or age. Officers of the Fleet

Naval Reserve constitute a body of officers available to the Department for duty in emergency, and the fact that officers in that status should draw retainer pay is readily recognized and concurred in by Congress.

The difference in designation between transfer to the retired list and transfer to the Fleet Naval Reserve is small, but it seems a desirable change to make in the interest of efficient operation of the Navy in time of war. Officers in the Reserve would be required to keep in touch with the active Navy, performing drills, taking training cruises, and in other ways maintaining efficiency.

In order to provide a steady flow of promotion through all the grades, the authorized number in the different grades being established as is now done by law, the length of time considered proper for an officer to remain in each grade must be determined, and the law provide that necessary vacancies shall be created artificially in order to ensure officers passing through grades in the time set.

The present law providing for age-in-grade retirement practically establishes the average length of time that officers shall spend in the grades of rear admiral (eight years from fifty-six to sixty-four), captain (six years from fifty to fifty-six), and commander (five years from forty-five to fifty).

The length of time in the grades of lieutenant commander, lieutenant, and lieutenant (j.g.) are not established. Lieutenants (j.g.) are not to be promoted in less than three years. The length of time in the grade of ensign is established by law to be three years.

To obtain a regular flow of promotion through all the grades, the length of time for an officer to be in the various grades should be established for *each* grade.

The determination of the length of time for officers to spend in each grade would logically depend upon service conditions, the demand for services of officers of the different grades, and the experience necessary in one grade to fit an officer for advancement to the next higher grade. While it is desirable that officers enter flag rank at an early age, it is believed that the present law allows too long a time in flag rank and too short a time in command rank.

The following represents a suggested normal or average division of the duties in the various grades:

	Sea Duty	Shore Duty	Total Time in Grade
Ensign	3 yrs.	None	3 yrs.
Lieutenant (j.g.)	2 yrs.	.... 1 yr.	3 yrs.
Lieutenant	.... 3 yrs. .... 2 yrs.	1 yr. .... 2 yrs.	8 yrs.
Lieutenant Commander	1 yr. .... 3 yrs.	.... 2 yrs. .... 1 yr.	7 yrs.
Commander	.... 3 yrs. .... 1 yr.	1 yr. .... 2 yrs.	7 yrs.
Captain	2 yrs. .... 2 yrs.	.... 2 yrs. .... 1 yr.	7 yrs.
Rear Admiral	.... 2 yrs. .... 2 yrs.	1 yr. .... 2 yrs.	7 yrs.
	25 yrs. at sea	17 yrs. ashore	42 yrs. Total

This starts an officer out with five years at sea. After five years at sea, officers to alternate two years on shore and three years at sea until their second cruise as a captain which would be for two years. Flag officers' cruises to be two-year cruises. The above assignment places officers of the various grades at sea in the following percentages.

Rank	Authorized No. in Grade	Percentage at sea	No. at sea with full authorized strength	No. at sea Oct. 1, 1924	Per-cent-age	Total on 1 Oct. 1924
Ensigns	2282	83(5/6)	1902	1756	83	2110
Lieutenant (j.g.)						
Lieutenant	1787	62(5/8)	1117	690	51	1340
Lieut. Commander	770	57(4/7)	440	414	62	664
Commander	385	57(4/7)	220	153	42	362
Captain	220	57(4/7)	126	67	32	207
Flag	55	57(4/7)	31	19	39	49
	5499	69.7%	3836	3099	65.5	4732

The above represents merely a tentative distribution of time in grade to serve as an example. It will be noted in the table that this assignment of five sixths, or eighty-three per cent, of the time and personnel at sea while in the grades of ensign and junior lieutenant corresponds with the percentage at sea at present.

In the grade of lieutenant it provides a higher percentage at sea (62%) than are at present assigned (51%), and in the grade of lieutenant commander a lower percentage (57% *vs.* 62%). It puts a higher percentage of commanders, captains, and flag officers at sea than at present. This should and would be governed by service needs.

After having established by thorough analysis of service requirements the total number of officers to be in each grade and the length of time to be spent in each grade, it is then a simple matter of arithmetic to determine the number that must go out of each grade each year in order to keep the flow steady through the grade.

In brief, the system herein suggested is, (1) determine the number of officers required for each grade, (2) determine the length of time the average officer should spend in each grade, (3) provide that the number of officers represented by (1), divided by (2), will be promoted into the grade each year from the grade below. (4) Promotions by seniority. (5) Eliminations by selection out from all grades.

If the number of vacancies in any grade to ensure the required number of promotions from the next lower grade is not created during the year by natural processes—retirement, promotion, death, etc.—then the difference between the number of vacancies

actually created and the required number would be effected by elimination (selection out).

For instance, if it is decided that officers should normally remain seven years in the grade of captain and seven years in the grade of commander: There are authorized 220 officers in the grade of captain and 385 officers in the grade of commander. If officers are to go through these grades in seven years, one seventh of 220 captains or thirty-one captains, and one seventh of 385 or fifty-five commanders must pass out of the grade each year.

In the grade of captain, if eight are promoted to rear admiral, and seven die or retire, then the difference between thirty-one and eight plus seven or sixteen captains would have to be selected out to make vacancies for promotion of thirty-one commanders. Similarly in the grade of commander, if thirty-one have been promoted to captain, and thirteen die or retire, then the difference between fifty-five and thirty-one plus thirteen, or eleven commanders would have to be selected out to make vacancies for promotion of fifty-five lieutenant commanders.

The same process would be followed throughout all the grades as shown in the table following:

Rank	(1) No. in grade	(2) Yrs. in grade	(3) Annually created vacancies (1)÷(2)	(4) Annual Attrition	(5) Promoted Col. (3)	(6) Selected out (3)—[(4)+(5)]
Flag	55	7	8	7(13%)	0	1
Captain	220	7	31	7(3%)	8	16
Commander	385	7	55	13(3.5%)	31	11
Lieutenant Commander	770	7	110	31(4%)	55	24
Lieutenant	1787	8	223	72(4%)	110	41
Lieutenant (j.g.) and Ensigns	2282	6	380	92(4%)	223	65
		42				158

It is necessary to select out in the lower grades of lieutenant (j.g.) and ensign in order to provide a regular inflow from the Naval Academy.

In order to keep the lower grade filled 380 midshipmen should be commissioned ensigns annually. This would require five appointments for each Congressman.

Should the number of graduates from the Naval Academy be less than 380, then the number to be selected out from the grades of lieutenant (j.g.) and ensign would be correspondingly reduced. For example, if but 340 midshipmen were commissioned as ensigns, being forty less than the normal requirement, then the number to be selected out would be sixty-five minus forty or twenty-five. The only object of selection out is to make way for promotion from below. As a matter of actual practice there would be few selections out from these grades until the authorized strength is reached, and the output of the Naval Academy be more than necessary to fulfil the requirements. This, however, would not interfere with the normal number of promotions out of the grade of lieutenant (j.g.) or 223, nor the normal length of time in the grades.

It is also necessary to select out from the flag grades, if the requisite number of vacancies have not been created by retirement and deaths, in order to maintain the regular flow from the captain's grade.

This system retains the desirable feature of regulating the age at which the average officer will reach each grade, and discards the undesirable feature of forcibly eliminating officers who happen to be slightly older than their contemporaries. Officers would be transferred from the active list solely for comparative lack of merit. Date of birth would not govern an officer's chances for promotion. Elimination is carried into all grades, instead of concentrating on three grades as at present. Many officers reveal very soon after receiving their commissions decided lack of qualifications required to make efficient officers, but if they are able to pass examinations for promotion they cannot be eliminated under the present law until they reach the top of the lieutenant commanders' list, are passed over, and retire for age in grade. It would be better for the officers concerned and better for the service if those who are to go out go early. The officers are better able to take up a new business in civil life, and their places on the navy list can be filled with officers better qualified.

It is also not inappropriate that the elimination feature extend into the flag grades, not only for the purpose of carrying the principle of the system throughout all grades, but for the reason that officers who have made good captains do not always make

good admirals, and it is undesirable that a relatively poor admiral stay on the active list for seven years.

Elimination below the grade of commander is less expensive than elimination in or above that grade. The costs run as follows:

Rank	Age	Pay	Expectancy years	Total Cost per Individual
Flag	64	$6,000	11.67	$70,020.00
Captain	57	4,500	16.05	72,225.00
Commander	50	3,553	20.91	73,293.23
Lieutenant Commander	43	2,228	26.00	57,928.00
Lieutenant	36	1,008	31.07	31,318.56
Lieutenant (j.g.)	28	330	36.73	12,120.90

The cost of the reserve list under this system with distribution as shown above would be as follows:

Rank	Transferred	Age	Expectancy	Total on List	Pay	Total Cost
Admiral	8	64	11.67	93	$6000	$ 558,000
Captain	16	57	16.05	257	4500	1,156,500
Commander	11	50	20.91	230	3553	817,190
Lieut. Commander	24	43	26.00	624	2228	1,390,272
Lieutenant	41	36	31.07	1274	1008	1,284,192
Lieutenant (j.g.)	65	28	36.73	2387	330	787,710
						$5,993,864

Taking the present authorized strength in each grade, analysis of various other apportionments of length of time in grade gives the following:

NOTE: It will be noted in these tables that whatever distribution is made of the time in grades the total number to be eliminated each year is 158. Shortening the time spent in a grade increases elimination in that grade, and increases promotions and decreases elimination from the grade below. The time in grades can be so distributed as to place the greatest elimination in whatever grade or grades desired. The earlier the elimination the greater the economy. To place elimination altogether in the lower grades, however,

would not be desirable from the standpoint of military efficiency, as to do so would unduly shorten the time in the lower grades and lengthen it in the upper grades if the numbers in grades are retained as at present. The most desirable compromise must be determined upon, *looking primarily to military efficiency and then to economy.*

It is to be borne in mind that in all these tables in the column "attrition" and in all discussion where numbers are mentioned for elimination, the figures given are based on the *normal* attrition as determined by experience of the past several years. The attrition in a grade might in any year be more or less than as given in the table. The elimination in each grade would vary with the attrition. If more officers retire or resign than the average, the number of selections out would correspondingly decrease.

Rank	(1) No. in grade	(2) Yrs. in grade	(3) Annually created vacancies (1)÷(2)	(4) Annual Attrition	(5) Promoted Col. (3)	(6) Selected out (3)−[(4)+(5)]
Flag	55	8	7	7(13%)	0	0
Captain	220	6	37	7(3%)	7	23
Commander	385	6	64	13(3.5%)	37	14
Lieutenant Commander	770	8	96	31(4%)	64	1
Lieutenant	1787	8	223	72(4%)	96	55
Lieutenant (j.g.) and Ensign	2282	6	380	92(4%)	223	65
	5499	42		222		158

The cost of the reserve list under above distribution would be $5,831,611.

Rank	(1) No. in grade	(2) Yrs. in grade	(3) Annually created vacancies (1)÷(2)	(4) Annual Attrition	(5) Promoted Col. (3)	(6) Selected out (3)−[(4)+(5)]
Flag	55	7	8	7	0	1
Captain	220	7	31	7	8	16
Commander	385	6	64	13	31	20
Lieutenant Commander	770	8	96	31	64	1
Lieutenant	1787	8	223	72	96	55
Lieutenant (j.g.) and Ensign	2282	6	380	92	223	65
	5499	42		222		158

The cost of the reserve list under above distribution would be $5,765,736.

Rank	(1) No. in grade	(2) Yrs. in grade	(3) Annually created vacancies (1)÷(2)	(4) Annual Attrition	(5) Promoted Col. (3)	(6) Selected out (3)−[(4)+(5)]
Flag	55	7	8	7	0	1
Captain	220	6	37	7	8	22
Commander	385	7	55	13	37	5
Lieutenant Commander	770	8	96	31	55	10
Lieutenant	1787	8	223	72	96	55
Lieutenant (j.g.) and Ensign	2282	6	380	92	223	65
		42				158

The cost of the reserve list under above distribution would be $5,579,419.

Rank	(1) No. in grade	(2) Yrs. in grade	(3) Annually created vacancies (1)÷(2)	(4) Annual Attrition	(5) Promoted Col. (3)	(6) Selected out (3)−[(4)+5]
Flag	55	8	7	7	0	0
Captain	220	6	37	7	7	23
Commander	385	5	77	13	37	27
Lieutenant Commander	770	8	96	31	77	0(−12)
Lieutenant	1787	9	199	72	96	19(31−12)
Lieutenant (j.g.) and Ensign	2282	6	380	92	199	89
		42				158

NOTE: This is the approximate distribution of length of time in grade under the present law.

The cost of the retired list under above distribution would be $5,892,331.

It will be seen that the range of cost under any distribution is not great.

The cost of the retired list under the present age-in-grade retirement system is $7,393,151
Under straight seniority 3,571,020
Under length of service system 7,393,151
Under system suggested herein 5,993,864

The rates of pay considered herein for suggested system are the present rates of pay for retired list.

No attempt has been made to discuss rates of retainer pay to be authorized in case the plan is adopted of transferring officers eliminated from the active list to the Fleet Naval Reserve instead of to the retired list. In the following comparisons of cost the full authorized strength is assumed in all grades and normal conditions to exist under each system.

It will be noted that for combined active and retired list the system suggested herein is more economical than any of the systems yet tried.

COST COMPARISON ACTIVE AND RETIRED LIST

	Present Law Age-in-grd. retirement	Length of Service retirement	Straight Seniority	Plan Suggested herein
Active list.....	22,412,918	Same as age-in-grade	24,771,178	21,925,179
Ret. list.....	7,393,151		3,571,020	5,993,864
TOTAL.....	29,806,069		28,342,198	27,919,043

The disadvantage of either the system of age-in-grade retirement or the system of retirement for length of service after graduation is that an officer's promotion is dependent to a considerable extent upon (1) his relative age as compared with his contemporaries, or, (2) upon the size of the class in which he graduates.

Promotion is not dependent altogether upon merit as it should be—the element of chance enters. This is an inherent defect in both of these systems and exists even when promotion is by selection.

Under the present system of age-in-grade retirement, officers who are relatively old for their position in their grade will not come within the block where the Selection Board would with reason select them for promotion, and they have to retire for age before being considered for promotion.

Similarly, if the system were adopted of retiring for length of service, officers in classes relatively larger than the classes ahead and behind them, will in all probability be forced to retire, due to the fact that there are more officers who have served the stipulated length of time than there are vacancies for them in the next

higher grade. A larger percentage of officers will be forced out of the large classes than will be the case in small classes.

In each case officers will retire not because they are considered less efficient than their confrères, but because they are victims of the restrictions placed on elimination.

A system which provides for promotion by merit, or elimination for comparative lack of merit, would ensure better results, in that promotion is not a matter of chance but of relative efficiency.

The feature of the present system of selection up, which leaves officers on the active list after being passed over, causes discontent and has resulted in some cases in a decided decline in the efficiency of officers on the active list who feel that they have no chance for promotion and are simply marking time until they are due to retire for age. There is a hopelessness in the situation which has a decidedly detrimental effect on the individual and his discontent is reflected frequently in his shipmates.

Any system of selection up which leaves on the active list officers who have been passed over, is open to the same objection.

It is believed that a modification of the old system of promotion by seniority combined with selection out to produce the required number of vacancies in each grade, somewhat as provided in Sections 8 and 9 of the Act of March 3, 1899, is the ideal system to be adopted, considering efficiency, contentment, and economical operation. A system of selection out, extending throughout all grades, opens the possibility of eliminating the less desirable officers early in their careers, and does not delay the process until they reach the top of the lieutenant commander, commander, or captain grades as at present. This feature is desirable from a military and from an economical standpoint. With this system in effect officers near the top of the list in each grade will have been under observation by the Selection Board for a number of years, and by the fact that they have not been selected out are pronounced to be considered fit for promotion to the next higher grade. This fact in itself practically constitutes selection up to each grade, and with the provision of promotion by seniority and selection out it accomplishes the purpose of selection up, without the undesirable features of changing the relative position of officers in the Navy list with the consequent embarrassments and ill feelings which undoubtedly do result from such system.

Under the present system of retirement for age-in-grade the following retirements will take place:

Fiscal Year Ending 1 July	Captain	Comdr.	Lt. Comdr.	
1925	3	3	4	
1926	8	3	4	
1927	9	5	4	
1928	2	1	2	
1929	6	0	5	
1930	15	1	7	
1931	9	1	9	
1932	16	4	9	
1933	19	10	16	
1934	13	28	29	Total
Total.....	100	56	89	245
Average thereafter approx.	25	29	42	96

Under a system of retirement for length of service since graduation (35, 28, and 23 years) the following would retire:

Fiscal Year Ending 1 July	Capt.	Class of	Comdr.	Class of	Lt. Comdr.	Class of	
1925	4	..	4	..	1	'02	
1926	9	'91	3	'98	2	03	
1927	9	92	0	99	3	04	
1928	2	93	0	00	3	05	
1929	10	94	0	01	5	06	
1930	8	95	0	02	1	07	
1931	2	96	0	03	0	08	
1932	13	97	1	04	7	09	
1933	5	98	7	05	43	10	
1934	14	99	77	06&07	14	11	Total
Total.....	76		92		79		247
Average thereafter approx.....	25		29		42		96

The irregularities in each system are noticeable.

Had the system herein suggested been in operation during the calendar year 1924, the effect would have been as shown below:

Rank	(1) No. in grade 1/1/24	(2) Yrs. in grade	(3) Annually created vacancies (1)÷(2)	(4) Annual Attrition Actual	(5) Promoted Col. 3	(6) Selected out (3)−[(4)+(5)]
Flag	49	7	7	5	0	2
Captain	198	7	28	4	7	17
Commander	351	7	50	6	28	16
Lieutenant Commander	638	7	91	20	50	21
Lieutenant	1441	8	180	57	91	32
Lieutenant (j.g.) and Ensign	1808	6	301	140	180	(—)19
	4485	42				111

The number in Column 6 represents those that would have been selected out if the present strength in grades were the full authorized strength.

While the process of building up to authorized strength is going on, elimination from any grade would not take place, however, until the total authorized strength for that grade is reached. The regular number of promotions out of each grade would be made. The actual result would be as shown below:

Rank	1924 1 Jan. No. on list	Promoted from next lower gr.	Actual Attrition	Promoted to next higher gr.		No. in gr. at end of yr.		Auth. No. in grade	To be selected out
				By this system	*Actually*	*By this system*	*Actually*		
Flag	49	7	5	0	0	51	49	55	No selections out as no grades are filled to auth. strength
Captain	198	28	4	7	5	215	207	220	
Comdr.	351	50	6	28	18	367	363	385	
Lt. Cdr.	638	91	20	50	36	659	662	770	
Lieut.	1441	180	57	91	80	1473	1309	1787	
Lt. (j.g.) and Ensign	1808	301 (421) actually	140	180	5	1909	2084	2282	
	4485		232			4674	4674	5499	

The same process would be followed in succeeding years until each grade is filled to authorized strength, there being no eliminations from any grade until its strength is reached.

If the authorized strength in grades remains as at present, and if the rate of attrition continues as it was during 1924, elimination would begin in the grade of rear admiral in about 1927, in the grade of captain in about 1926, in the grade of commander in about 1927, and in the lower grades in about 1929.

The abnormal situation that will be created beginning about 1932 when the large group of about 350 ex-warrant and temporary officers who were given permanent commissions in 1920-1921 commences to enter the lieutenant commander list, and again in 1936 when another group of about 430, who were commissioned in 1921, reaches this position, cannot be corrected by any system. If the present law, extending their forced retirement on account of age to ten years in the grade of lieutenant commander, six in the grade of commander, and eight in the grade of captain, remains in effect, promotion of officers below them will be unduly delayed for years; and then when these ex-warrant officers do retire for age there will be very irregular leaps in promotion.

If the length of service system should be in effect, they would all go out at once, creating another most unsatisfactory situation.

A system such as suggested, whereby certain definite numbers would go out of the lower grades each year, would appear to better the situation, although no system can completely remedy it.

After 1946, normal conditions will obtain and the average annual retirements under either system of age-in-grade or length of service retirements will be about twenty-five captains, twenty-nine commanders and forty-two lieutenant commanders. Under the suggested system it will be one flag officer, sixteen captains, eleven commanders, twenty-four lieutenant commanders, forty-one lieutenants and sixty-five lieutenants (j.g.) and ensigns.

Under normal conditions, and those are the conditions any system must contemplate—and even under abnormal conditions—it is submitted that the system suggested herein has the advantages over the present system that (1) it gives all officers an equal opportunity to be considered by the Selection Board for promotion; (2) officers promoted retain their same relative position on the list throughout their service; (3) promotion is systematized to the ex-

tent that officers will know that after a certain number of years they will either be in a certain position on the navy list, or will be in the Fleet Naval Reserve; (4) it will, through the elimination feature, give a very high professional standard throughout all grades; (5) its cost is less than the present system of retirement for age-in-grade, or the system of retirement for length of service.

It is recognized that there are objections to this proposed system as there are to any system that has as yet been devised. Any system of promotion adopted must be one in which the advantages are believed to outweigh the disadvantages.

A rough draft of sections of a bill designed to carry out the above recommendations is submitted:

That the provisions of existing law which stipulate that "no captain, commander, or lieutenant commander shall be promoted who is more than fifty-six, fifty, or forty-five years of age, respectively" and that "officers of the line of the Navy who are appointed thereto pursuant to the Act of June 4, 1924, from sources other than the Naval Academy shall not be ineligible for promotion by reason of age prescribed by the Act of August 29, 1916, until they have rendered ten years' service in the grade of lieutenant commander, six years' service in the grade of commander, and eight years' service in the grade of captain, respectively, upon the completion of which service such officers, if then ineligible for promotion by reason of age, shall be retired in accordance with said Act" are hereby repealed.

Hereafter, the total number of commissioned officers of the active list of the line of the Navy, exclusive of commissioned warrant officers, shall be four percentum of the total authorized enlisted strength of the active list, exclusive of the hospital corps, prisoners undergoing sentence of discharge, enlisted men detailed for duty with the Naval Militia, and the flying corps: Provided, that the total number of commissioned line officers on the active list at any one time, exclusive of commissioned warrant officers, shall be distributed in the proportion of one in the grades of flag rank, to four in the grade of captain, to seven in the grade of commander, to fourteen in the grade of lieutenant commander, to thirty-two and one-half in the grade of lieutenant, to forty-one and one-half in the grades of lieutenant (j. g.) and ensign inclusive. Provided further, that if in any one year the number of vacancies

created in the line of the Navy in the grade of rear admiral do not equal one-seventh the total number of flag officers; in the grade of captain do not equal one-seventh the total number of captains; in the grade of commander do not equal one-seventh the total number of commanders; in the grade of lieutenant commander do not equal one-seventh the total number of lieutenant commanders; and in the grade of lieutenant do not equal one-eighth the total number of lieutenants; and in the combined grades of lieutenant (j. g.) and ensign do not equal one-sixth the total number of lieutenants (j. g.) and ensigns, then a sufficient number of officers to bring the number of vacancies in each grade up to the above proportions shall be selected from the grade for transfer to the Fleet Naval Reserve. Provided further, that no officer shall be promoted to any grade unless he has not less than two years' sea service on sea going ships in the grade in which serving, provided that the qualification of sea service shall not apply to officers restricted to the performance of engineering duty only. Provided further, that officers who are selected for transfer to the Fleet Naval Reserve shall be transferred with a retainer pay based on a percentage of pay equal to two and one-half percentum of their pay at date of transfer for each year of service, provided further, that the total retainer pay shall not exceed seventy-five percentum of the pay they were entitled to receive while on the active list. The boards for selection for transfer to Fleet Naval Reserve shall, etc., (as in existing law for Selection Board with modifications to provide for the feature of selection for transfer to Fleet Reserve).

Figures given herein are not to be taken as an *accurate* representation of the working of this system. They are intended more as approximate illustrations of a suggested principle which has possibilities but which would have to be more fully developed before adoption.

The number of promotions to be made into a grade to maintain the prescribed average of length of service in the grade would depend upon the location in the grade from which the eliminations were made—eliminations by casualties and by selection out. If the majority of eliminations are near the top of the grade, the number of promotions into the grade to ensure an average of seven years in the grade would be less than if they are at the bottom of the grade. If distributed uniformly throughout the grade

the eliminations in each grade and promotions into each grade would be somewhat more than as shown in the tables. In the tables the computations have been made as though eliminations were from the top of the grades.

Another possible avenue of approach to the solution of this same problem of securing promotion after a certain average length of service in each grade without stipulating absolute elimination features such as for age-in-grade, etc., would be to provide that the top one-seventh of each grade (assuming seven years' average for each grade) should leave the grade each year; the requisite number for filling vacancies in the next higher grade to be selected for promotion from the top seventh, the remainder to be placed in the Fleet Naval Reserve. This would put officers through each grade in seven years, would do away with the feature of selection out that is so objectionable to Congress, would preserve the feature of selection up, and would make promotion or transfer to Reserve dependent absolutely on relative merit or lack of merit.

INTELLIGENCE TESTS AT THE U. S. NAVAL ACADEMY

By Lieutenant Commander M. S. Tisdale, U. S. Navy

FOR several years the authorities of the Naval Academy have been conducting experiments to determine some means of measuring accurately what the psychologists would call native intelligence. They have made these tests not as an academic study of psychology but wholly as a practical effort to determine:

(a) Whether native intelligence can be measured accurately by means of a short, simple test.

(b) Whether such measurements can properly be used as a bar to entrance, or as a contributory cause for dismissal after admission.

(c) Whether the entrance requirements are adequate.

(d) Whether the scholastic standards of the course are sufficient.

(e) Whether there is a relationship between native intelligence and misconduct.

(f) Whether there is a relationship between native intelligence and relative standing for the four years of the course.

The results of the tests already completed indicate that intelligence is measurable. They require the serious consideration, eventually, of refusing admission to candidates of lower intelligence; show that the psychometric mark is a valuable assistance in diagnosing a case of scholastic failure; prove that the standards of the Academy are in keeping with what the country has a right to expect from students in its pay; indicate that the entrance requirements as recently revised are adequate; show that there is little relationship between intelligence and misconduct, probably because the entrance requirements are a bar to students of really low mentality; and show a marked relationship between high native intelligence and an ability to graduate near the top of a class.

Only in a college where detailed records are kept is it possible to compare native intelligence with factors other than a mere ability to graduate.

The daily marking of midshipmen necessitates minute record keeping in order that, at the end of the four-years' course, the authorities may say that Midshipman A is more intelligent than Midshipman B and deserves to be promoted ahead of him. These accurate records provide a fertile field for the study of psychometric relationships.

Early in his plebe year each midshipman is required to undergo a simple test which consists of but five blocks of questions and takes less than half an hour to complete. No particular education is necessary in order to pass the test. No study or general knowledge is required; in fact, none is desired. For the measurement of natural intelligence presupposes a mind untutored in the particular exercise.

Among the tests used are the "dissected sentence," the "missing word," the "cancellation," the numeral test for memory, and the "code" test. All of these were furnished originally by Dr. A. W. Stearns,* a psychologist who had a wide experience in this sort of work in the Navy during the World War. They have been altered from time to time but not in their major features.

In the dissected sentence test words must be transposed into a sensible sentence. For instance:

Seldom — forever — good — lasts — luck which is, of course:

Good luck seldom lasts forever.

In what may be called the "missing word" test, certain words are omitted and must be supplied. A very simple example is:

The boy fell out of the —— and —— his hand.

Visualizing a code and then writing a short sentence in it is one of the hardest of the tests. The partial code on the following page is not the one used at the Naval Academy but is typical and will serve by way of example.

It can never be said with certainty that a midshipman of superior intelligence will succeed or that one of less natural capacity will not. There are external factors common to a percentage of each psychometric group such as dislike for naval restrictions, home-

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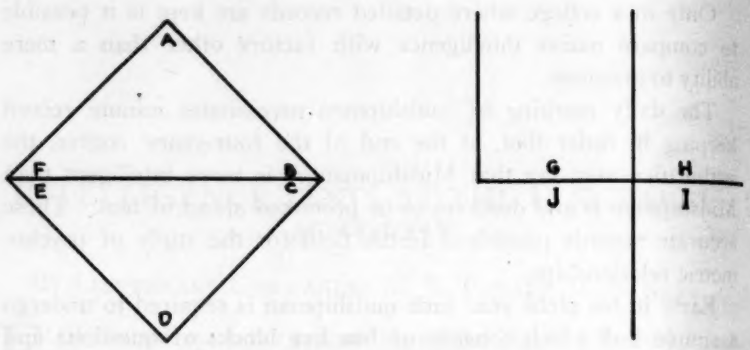


HE HAD HID BAG

sickness, love, and physical disability, pulling or pushing the midshipmen and upsetting any absolute measuring of one individual's chance of graduating. The records show that these factors exert a reasonably equal pressure on all groups and therefore they were disregarded in the analysis of groups. Midshipmen who left the Academy by voluntary resignation or for physical disability were removed from the compilation of psychometric marks and were not charged as either successes or failures.

The remainder of any one class were divided into six groups (A to F), determined by the marks made on the psychometric tests. Classes which were examined later were divided into eleven groups (A to K) to get a finer differentiation between groups. "A" group contained those midshipmen who made psychometric marks between 95% and 100%, and the lower groups—B, C, D, etc.—were scaled down in increments of 5%, except that in the six-group division all those midshipmen who made below 75% were placed in group "F," while in the eleven-group division the increments of 5% were continued down to group "K," which included all those midshipmen making marks below 50%.

In order to have the data in an easily readable form, graphs have been constructed for the respective classes, showing the relationships between native intelligence and the various factors studied. Three typical graphs are reproduced herewith, which show at a glance that native intelligence can be and is being measured. They

also indicate the reasons for claiming the results of a previous paragraph. They show that the men who make the higher marks on the psychometric tests have, as a group, a markedly better chance of completing the course than the men whose psychometric marks place them in the lower groups.

STUDY OF A CLASS AFTER ONE YEAR AT THE NAVAL ACADEMY

See graph A

Curve 1 shows the original class distributed according to the marks made on the psychometric test.

Curve 2 shows the distribution of those remaining in the class after the completion of one year (their fourth-class year).

Curve 3 shows the distribution of those who failed during the year, arranged according to their psychometric marks.

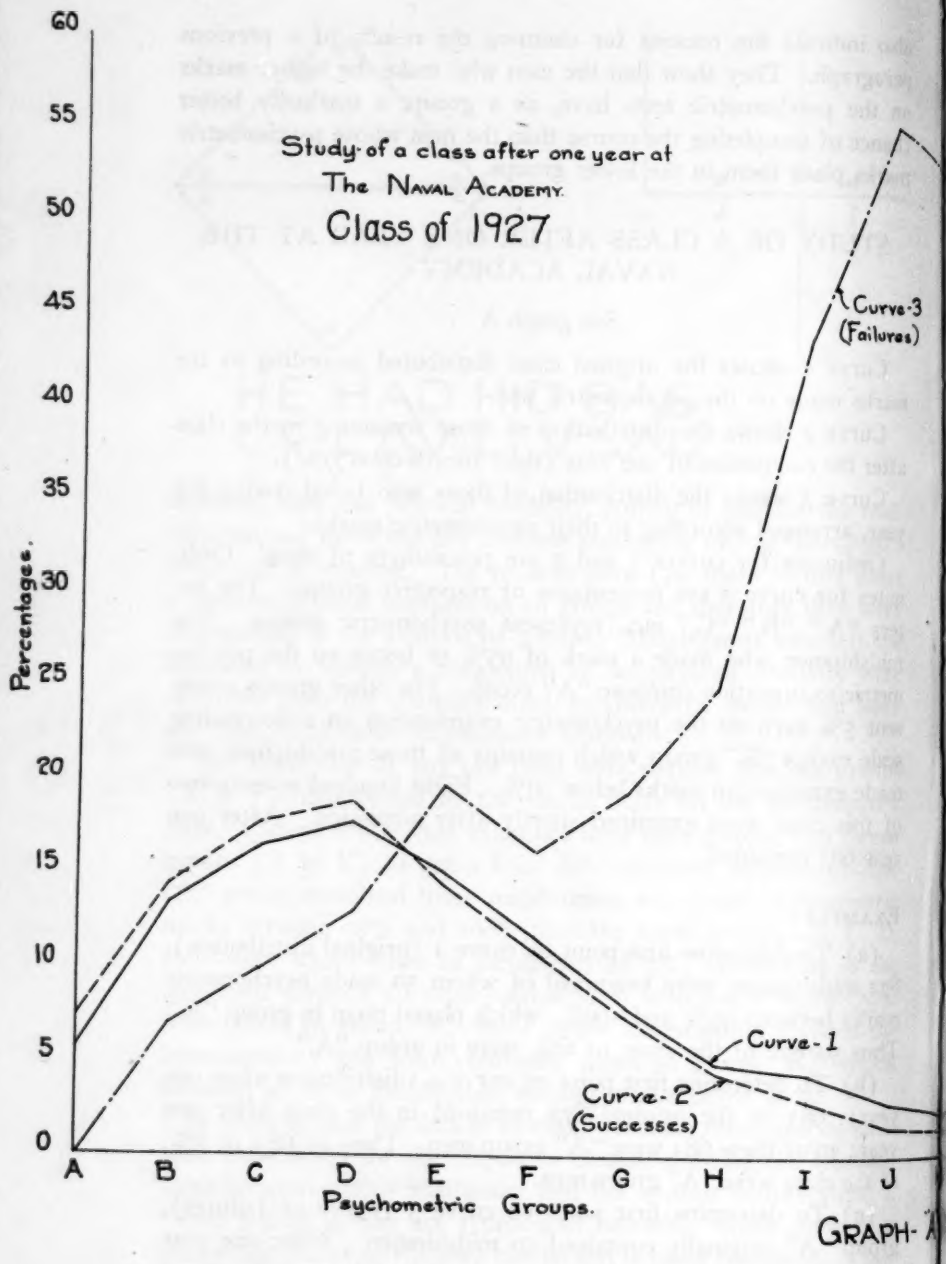
Ordinates for curves 1 and 2 are percentages of class. Ordinates for curve 3 are percentages of respective groups. The letters "A," "B," "C," etc., represent psychometric groups. The midshipmen who made a mark of 95% or better on the psychometric examination compose "A" group. The other groups represent 5% each on the psychometric examination on a descending scale except "K" group which contains all those midshipmen who made examination marks below 50%. Eight hundred seventy-two of this class were examined shortly after admission. After one year 683 remained.

EXAMPLE:

(a) To determine first point on curve 1 (original distribution), 872 midshipmen were examined of whom 50 made psychometric marks between 95% and 100%, which placed them in group "A." Thus 50/872 of the class, or 6%, were in group "A."

(b) To determine first point on curve 2 (distribution after one year), 683 of the original 872 remained in the class after one year; 49 of these 683 were "A" group men. Thus 49/683, or 7%, of the class were "A" group men.

(c) To determine first point on curve 3 (curve of failures), group "A" originally contained 50 midshipmen. After one year 49 of them remained and the one who left did not fail. None


Study of a class after one year at
The Naval Academy.
Class of 1927
Curve-3
(Failures)
Curve-1
Curve-2
(Successes)
Percentages.
60
55
50
45
40
35
30
25
20
15
10
5
0
A
B
C
D
E
F
G
H
I
J
Psychometric Groups.

GRAPH-A

failed. Thus the percentage of failures for "A" group was 0/49 = 0%.

The following table gives the data for curve 3 and is inserted for the benefit of those who dislike reading curves.

Group	Percentage of group failed	Group	Percentage of group failed
A	0	G	19
B	7	H	25
C	10	I	44
D	13	J	56
E	20	K	53
F	16		

NOTE: That there is a nearly regular increase in failures varying as the psychometric mark.

From an analysis of these curves the worth of the psychometric test may be proved. They show that:

1. *Few men fail who are able to make good marks on the intelligence test.*

In the class of 1927 none failed from group "A" and only 7% from group "B."

2. *Many fail from those who make poor marks on the psychometric test.*

In one year at the Naval Academy there were eliminated by scholastic failure 44% from group "I," 56% from group "J" and 53% from group "K."

3. *The entrance requirements have eliminated most of the slower, inaccurate thinkers of low native intelligence.*

Only 17 out of 872, or 2%, received grades of less than 50% on the intelligence tests.

4. *Any group of men contains a few of superior intelligence, a large number of average intelligence, and a few of inferior intelligence.*

Whereas there were 6% in group "A," there were 16%, 17% and 15% of the class in groups "C," "D," and "E," respectively. Group "J" contained but 2.5% of the class. Yet each of these groups covered the same variation (5%) in examination mark.

Only 19% of the class made grades between 69 and 50, while 60% of the class made from 89 to 70.

5. *The psychometric test does measure intelligence insofar as ability to secure passing marks goes.*

Relatively few failed from groups"A"-"D" and more from groups "E"-"K," which was expected. The tests do measure intelligence and the midshipmen of the lower groups are a considerably poorer risk than those of the higher groups.

6. *The groupings may be used to indicate the probability of a student graduating.*

If the curves be plotted showing the percentage of the class remaining at any time, it is seen that the percentage increases in the higher groups and decreases in the lower groups. The curves are almost parallel and equidistant "D" to "H," indicating that in these groups there is an average chance to graduate. Those in groups "A" to "D" have a splendid chance, and those in "I"-"K" a very poor chance. So far as the Naval Academy is concerned, these "I," "J," "K" men are the round pegs in square holes. Few of them can be shaped to fit and the process is uneconomical, and unsatisfactory to both the government and the man. There is much to recommend denying them the chance to try, and inviting their attention to lines of endeavor more in keeping with their intellects.

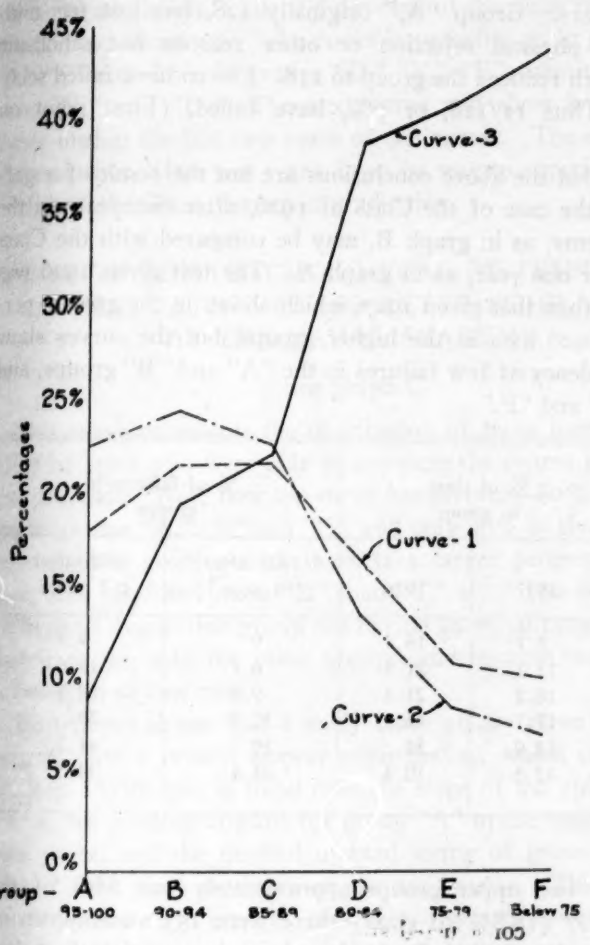
STUDY OF A CLASS AFTER TWO YEARS AT THE NAVAL ACADEMY

See graph B

The curves are constructed similarly to those in graph A.

Curve 1 shows the distribution of the 699 members of the class who took the psychometric test shortly after admission in 1922. Group "A" contained 128 midshipmen. 128/699 = 18% = first point on this curve. (The test was easier than the one given the Class of 1927 though similar.)

Curve 2 shows the distribution of the 467 of the original 699 who remained after two years. After two years group "A" contained 107 midshipmen. 107/467 = 23%,—that is, 23% of the class were "A" men. This gives the first point on curve 2.



Study of a class after 2 Years at
The Naval Academy
Class of 1926.

GRAPH "B"

Curve 3 shows the distribution of those who failed during the first two years. Group "A," originally 128, has lost ten midshipmen by physical rejection or other reasons not scholastic failures, which reduced the group to 118. Eleven have failed scholastically. Thus 11/118, or 9%, have failed. (First point on curve 3.)

To show that the above conclusions are not the result of a particular test, the case of the Class of 1926, after two years in the Naval Academy, as in graph B, may be compared with the Class of 1927 after one year, as in graph A. The test given 1926 was less difficult than that given 1927, which shows in the greater percentage of 1926 men in the higher groups, but the curves show the same tendency of few failures in the "A" and "B" groups, and many in "E" and "F."

Group	% of class in group		% of failures in groups	
	1927	1926	1927 after 1 year	1926 after 2 years
A	5.7	18.3	0	9.3
B	13.1	21.9	6.7	19.6
C	16.2	21.8	9.8	22.5
D	17.7	16.6	12.9	39.
E	14.9	11.	19.7	41.2
Mark below 75 on test.	32.5	10.4	24.4	44.3

ANALYSIS:

1. In the two upper groups approximately one fifth of the Class of 1927 (18.8% of class) there were 153 midshipmen of whom 7, or 4.6% failed. In the four lower groups (marks below 65% on test) there were 105 men of whom 42, or 40%, failed. *Thus, a man whose psychometric mark is below 65 has 8.7 times the chance of failing that a man has whose mark was 90 or more.* Think that over.

2. With the limitations of the entrance examinations it is seen that few candidates of low native intelligence can qualify for admission and the majority of failures after admission come from those who do.

3. The percentage of the class in "A" group has increased some 5% since admission, while the per cent of the class in "F" group has dropped about 3%. The curve is swinging up in groups "A," "B," "C" and down in groups "D," "E," "F"—about a pivot between "C" and "D." The next curve will show how this continues during the last two years of the course. The curve of the Class of 1926, after two years, is on its way to superimpose itself on that of the Class of 1923 at graduation.

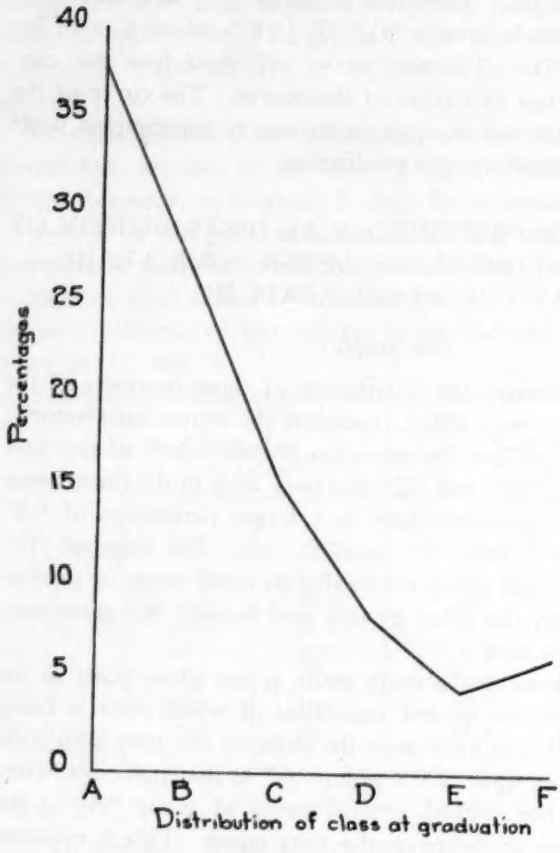
STUDY OF THE PSYCHOLOGICAL DISTRIBUTION OF A GRADUATING CLASS AFTER FOUR YEARS AT THE NAVAL ACADEMY

See graph C

This curve represents the distribution of those members of the Class of 1923 who were able to complete the course satisfactorily and graduate. Note how the curve has pivoted—80% of the class are in groups "A," "B" and "C," and only 20% in the three lower psychometric groups—and, there is a larger percentage of "A" men than "B," and more "B" than "C," etc. The slope of "F," perhaps, is due to that group not having an equal range of psychometric marks with the other groups, and because the percentage is based on so few men.

Experience shows that a study made at any given point in the course gives a certain answer regardless of which class is being studied. With this in mind note the slope of the 1927 admission curve, the pivoting upward for group "A" in the 1926 curve after two years, and the marked upward swing of group "A" at the end of four years as shown on the 1923 curve. This is evidence that the course, in general, eliminates those of lower intelligence and permits the graduation of those of higher intelligence, which indicates that the standard for graduation is satisfactory.

Graduates of the Naval Academy are listed according to their final multiple for the four years. The curve constructed for analyzing the relationship between intelligence and relative standing at graduation is somewhat complex. Suffice it to say that 53.5% of the first sixth of the class in relative standing came from "A" group, and that in this first sixth there were no midshipmen from groups "D," "E" or "F," again proving the point.



Study of a class after 4 years at
The Naval Academy
Class of 1923

GRAPH-"C"

These tests do not prove that the "A" men will become the best officers; only time can settle that, but they do show that the "A" man gets the most out of his four years' novitiate. Having the most, and other things being equal, he ought later to give the most.

Whether the man of superior natural intellect can stand the strain and responsibilities of the service as well as the average man is something also for the future to disclose. If he can—and knowledge is supposedly power—he has an initial advantage over those of lesser endowments, which can be overcome only by the hardest kind of work. Character, judgment, leadership, health, assiduity all are external factors of importance which vary with individuals. But of two men equally well endowed with them, the one of "A" group intellect has a tremendous advantage over him of "K" group whether his career be on the sea or on the land.

Life runs on averages, not individuals. Knowing that only one or two of the midshipmen in the lower groups can expect to graduate, why should any in that classification be admitted? Suppose that fifteen or twenty of them in a class of some eight hundred do succeed in cramming enough to pass the entrance examinations, perhaps on a second or third attempt. There is an economic loss to the government in admitting, paying, subsisting, and paying officers to teach them when not more than a very few can be graduated into the service. Their more capable classmates are held back by them. Many man-hours are wasted in extra instruction and re-examinations for men who cannot absorb a two five's worth. Then, too, there must be considered the injustice to the men themselves in taking them into a career in which they cannot succeed, only, eventually, to brand them failures. Nor can it be ignored that they are blocking the appointments of better men from their districts.

True, the one man from this group who may graduate might be a Nelson or a Farragut, but that's a far cry. It is impossible to put a quart of water into a pint measure.

In one of the recently graduated classes only one man in the lowest psychometric group succeeded in winning a diploma. He failed to be commissioned because of defective vision. Perhaps he ruined his eyes in a fine struggle with a course too difficult for his mental equipment. He is out of the service now, and the time and money spent on him might have been spent more wisely on a

potential ensign—which he was not, as the psychometric test demonstrated. The quart of water went into the pint measure but only after the pressure had started a seam.

The Naval Academy regulations now require a continued study of the psychometric relationships and comparisons. In a few years' time there should be a wealth of data on hand. It is not at all an illogical prophecy that some sort of a psychometric test will then be added to the requirements for admission.

The psychological measure of an *individual* cannot be taken as a final index to his future, but the measure of a *group* can be taken accurately and the success or failure of the *average* of the group predicted with certainty. When the time does come for barring candidates of insufficient natural capacity it will be wise to set the minimum mark allowable no higher than is necessary to block those who will be unable to complete the course, for strain oft-times finds the shoulders of the slower thinker a sturdier resting place than those of his more intellectual brother—and service and strain are seldom separated for long.

THE PROPOSAL FOR AN INDEPENDENT AIR SERVICE

By Captain M. G. Cook, U. S. Navy

AS IS well known, there is an active movement on foot in the United States leading toward the establishment of a united air force independent of either the Army or Navy. It is proposed to create this force by amalgamating the present aviation arm of the Navy with the present army air service. There are many indications that the agitation for such an independent air force will be renewed at the next session of Congress.

The interested parties who are responsible for the propaganda now appearing in the press in every section of the country are believed to be:

(a) *The greater portion of the commissioned personnel of the army air service.*—The personal advantages in the way of increased rank and prestige to be gained by these officers by such a reorganization are apparent. This element of self interest is of such great moment that it probably ultimately outweighs all other considerations.

(b) *A considerable number of the commissioned personnel now assigned to naval aviation.*—It is believed that many, particularly the younger element in this service, are dissatisfied with existing conditions, particularly with the rules requiring alternate periods of service in aviation and ordinary naval duties, and fear that specialization in aviation will operate against their chances of selection for promotion.

(c) *Former members of the commissioned personnel of the army and navy air services.*—These comprise more than 10,000 temporary officers who served in the World War in the air forces of either the Army or Navy. These former officers, now engaged in civil pursuits in all parts of the United States, not only are enthusiastic boosters for aviation, but they vividly recall the delay and inefficiency experienced in trying to create our air force in

1917-1918. These officers believe that the establishment of an independent force offers the best means to prevent such delays in any future war.

(d) *The aircraft manufacturers of the United States.*—The aircraft industry which received such an impetus during the World War, being built up to major proportions from practically nothing, has now been deflated to a state of virtual bankruptcy. Naturally, those interests which have been so adversely affected are vitally interested in any proposal which promises the expenditures of large appropriations in their field of industrial activity.

(e) *Enthusiasts who have been fascinated by the sensational progress and picturesque activities of aviation.*—These enthusiasts unfortunately include both active and retired officers of the Army and Navy not directly connected with aviation who refuse to see any limitations to this arm.

(f) *Certain economists who seek to reduce expenditures for national defense purposes.*—This class includes avowed pacifists who see in this a step toward elimination of armies and navies. These persons have been misled by the claims that the air arm offers a cheap method of national defense.

(g) *Certain friends of aviation in all walks of life.*—These include members of all the preceding classes who believe that the creation of an independent air service offers the best means for building up our air strength.

The proponents of a united and independent air force, insofar as naval aviation is concerned, advance the following arguments to support their contentions:

(a) That high naval authorities do not realize the profound effect on naval strategy and tactics that aviation has come to exercise and that such authorities are prejudiced against aviation.

(b) That the present army and navy air services to a large extent duplicate each other.

(c) That naval aviation has lagged far behind army aviation in organizing and training.

(d) That the air is a single element and there is no essential difference between aerial operations over land or over sea.

(e) That the types of aircraft used by the army and navy air services are largely the same, and there is, therefore, a duplication of equipment.

(f) That there is no organization in the Navy which directs the operation and training of the naval air service as a separate arm as does the chief of the air service for the Army.

(g) That air service units in the Navy are mainly commanded or directed by non-flying officers.

(h) That there is no essential difference in the training of a naval as compared with an army aviator and that the separate training schools represent duplication of effort.

(i) That the production of aircraft material and anti-aircraft weapons are not coordinated in the Navy, and the naval air service has no control over the design and production of the equipment and weapons employed in aerial and anti-aircraft operations.

(j) That naval aviation is much simpler than army aviation and therefore may be easily performed with little special training by personnel trained in army air service methods.

(k) That there exists no practicable defense by surface ships against aircraft and hence ships are useless for employment against an enemy who possesses a strong air force.

(l) That army and navy air stations perform the same service and therefore to a large extent duplicate each other.

(m) That development of aircraft is retarded by the present system and that such development would be accelerated by the creation of an independent air force.

(n) That the army and navy air services compete against each other in the procurement of material and personnel.

(o) That under the present system naval aviation is denied its fair proportion of appropriations for maintenance and increase.

(p) That since ships can be sunk by aircraft there is no excuse for devoting funds to build ships rather than aircraft.

(q) In conclusion, that the present system of two air services is wasteful and inefficient and that a united air service would be economical and serve best all the requirements of the national defense.

So important is this move for a united and independent air service, involving as it does a matter vital to the efficiency of the Navy, that it is believed all officers who may be called before the committees of Congress or elsewhere, should be well acquainted with it, and have at hand material to combat the above fair sound-

ing and plausible arguments. This paper has been prepared with such an end in view.

In the first place the highest naval authorities are fully aware of the important position which aviation has come to occupy as a military weapon. Events both at home and abroad are being studied by those officers who have anything to do with the operation or employment of naval aircraft or who direct or advise on naval policy. The Navy, from the beginning of practical flying, was one of the first to recognize its possibilities for naval warfare. As early as 1908, experiments with catapults and flying decks were begun in the effort to adapt aircraft for use on shipboard. The development of naval aviation in all its branches was slow until after the World War. The principal effort of naval aviation during the war was necessarily confined to coastal anti-submarine patrol. It would be unnecessary to point out the progress that has since been made, as the results are apparent to anyone.

The General Board of the Navy, composed of the highest ranking and most experienced officers of the Navy and Marine Corps, has recently made an exhaustive inquiry into the requirements of the Navy, surface, subsurface, and aerial, and the interrelation of each branch on the other.

As fast as possible all ships which can do so are being fitted to carry aircraft as part of their regular equipment.

Aircraft have for some time, within the limitation of their capabilities, been employed in all naval maneuvers as well as in theoretical war studies and games at the Naval War College and elsewhere. Through this means the Navy is trying to build up a sound theory covering the employment of aircraft in naval war operations.

It is believed that at the present time and for a long time to come the war mission of naval aircraft must necessarily flow from the great war mission of the Navy as a whole, which is, to control sea communications. Our studies and experience show that, in carrying out this mission, the Navy may employ aircraft in strategical and tactical operations for the following purposes:

(1) Gaining for ourselves and denying to the enemy the free use of the air over and in the vicinity of a naval engagement.

(2) Spotting for gunfire.

(3) Attacks with bombs and torpedoes on the enemy's most valuable or vital ships.

(4) Laying smoke screens to aid the efforts of our surface and subsurface craft or to conceal our own units from the enemy's attacking forces.

(5) Scouting before, during, and after an engagement.

Before a naval engagement, it is probable that aircraft, if they are present and can be employed, will be assigned initially to the first of the above tasks, for, until it is successfully accomplished, it is unlikely that any of the other tasks can be effectively performed. It is easy, however, to visualize conditions, such, for instance, as prevailed at Coronel and Heligoland Bight, when weather or visibility will prevent aerial operations. In such case the engagement would proceed along the usual lines.

Since the introduction of gun powder all important naval engagements have centered about the attack and defense of the heaviest gunned ships. There is nothing to indicate that a naval battle of today would not display the same marked phase. It may be that, in the distant future, naval supremacy will be decided by battles between aircraft operating from shore bases, but neither the radius, endurance, nor reliability of present day aircraft will permit this. It is much more likely that aerial operations over seas will be carried on by aircraft based on floating carriers or other surface ships, but, the aircraft carrier is herself a surface unit and must rely for her effectiveness and protection upon the other fleet units, particularly the subsurface and light surface craft. These light surface and subsurface craft, which are the active agents in exercising control of sea communications, must themselves be supported by heavy ships capable of overcoming any resistance which the enemy may oppose. This logically leads us back again to the necessity for having the heaviest gunned ship, the battleship, as the ultimate naval unit.

It is firmly believed that in the future, as in the past, an enemy fleet will be destroyed or decisively beaten only by the properly coordinated efforts of all weapons, the gun, the torpedo, the mine, the depth charge, the aerial bomb, gas and smoke. Aircraft are intrinsically valuable because they offer new means for transporting or employing some of the above weapons, or in aiding in their more efficient employment by the other fleet units. Aircraft them-

selves thus offer only one more means of attack which supplements means already existing. It would be the height of folly to discard at the present time these other means which have, in actual naval engagements, demonstrated their effectiveness. The air enthusiasts would thus have us lay aside the weapons which we know to be good and arm ourselves solely with new and untried ones whose effectiveness can only be conjectured.

Certain enthusiasts affect to believe that a united air force can be employed as a single unit to exercise its concentrated strength alternately over sea or over land as the occasion for such employment arises. It is likely that, in the next war as in all past wars, the Army and Navy will be striving for a decision at the same time. There is no likelihood that there will be any marked delineation in point of time between the naval and land phases of a war just as there was none in the last war.

Naval aviation today exists primarily as an arm of the fleet. It is an auxiliary of such fleet just as are the battleships, or the destroyers, or the submarines. This is the most effective rôle which naval aviation can play.

We are now producing or attempting to produce the following types of naval planes, each as efficient in its own field as material and design will permit at the present time:

(a) Combat planes (*VF*) for the purpose of protecting our own surface, subsurface, and aerial forces against enemy activity as well as to aid the other classes of aircraft in carrying out their missions.

(b) Observation planes (*VO*) for aerial reconnaissance, information and spotting.

(c) Scouting planes (*VS*) for long radius search and scouting; generally based on aircraft carriers.

(d) Patrol planes (*VP*) for long radius scouting, search and patrol; generally based on shore.

(e) Torpedo and bombing planes (*VT*) for attack on enemy surface and subsurface craft.

Efforts are now being made to combine the characteristics of (c) and (e) in a single type.

The above differ from the types employed by the Army, that is, pursuit, attack, reconnaissance and bombardment planes, in that naval types are fitted to land or take off from the water, or at

least are convertible, capable of being equipped with either pontoons or wheels, so that they may operate either from the flying decks of carriers, or from other surface ships as necessity arises. Land planes are generally somewhat faster, as the landing gear is lighter and offers less resistance than pontoons.

The larger types of naval planes, such as the *VP*, are flying boats having a true boat hull and cannot therefore be employed over land. However, amphibian planes for dual service are now being acquired.

In general, except for these *VP*, navy planes must be lighter and of smaller size than corresponding types of army planes. The span and weight are rigidly limited by the space and weight handling facilities on board ship. Except when operated from carriers fitted with flying decks, naval planes must be designed and equipped so as to be launched from catapults.

As rapidly as they are added to the fleet, naval aircraft are assigned to divisions, squadrons and groups, and are trained and maneuvered so as to operate in formation. A very complete manual on aircraft tactics has been compiled in the Division of Fleet Training and is now in the hands of the government printer. The air units assigned to the fleet and those operating from tenders have accompanied the fleet and participated in all recent maneuvers no matter where held. The tactical and strategical employment of aircraft is treated extensively in the *War Instructions, U. S. Navy*, with which publication all officers of the Navy who are called upon to maneuver fleets or ships must be familiar.

Aircraft now being added to the fleet are not, except for the Douglas world cruiser type, which, incidentally, is a navy development, of the same identical type as are being acquired for the Army, since, as shown above, they must be designed with a view solely to their naval use. There is, therefore, no avoidable duplication of equipment. There is the fullest interchange of information between the army and navy air services and each is at full liberty to take advantage of the design features elaborated by the other service. That naval aviation is behind in the attainment of the numbers of planes required, as compared with the Army, is due to the fact that the stock of naval planes left over from the war were nearly all of the patrol types employed for hunting submarines. On the other hand, the Army was well equipped with nearly all of the types it is likely to use.

The Bureau of Aeronautics of the Navy is charged with the design, construction, equipment and repair of naval and marine corps aircraft. The Bureau makes recommendation to the Bureau of Navigation and to the major general commandant of the Marine Corps, respectively, for details of officers for duty in connection with aeronautics, and also makes recommendation for the distribution of the enlisted personnel in the various ratings and ranks required in aeronautic activities. The Bureau makes recommendations to the Chief of Naval Operations and the Major General Commandant relative to all matters relating to planning, operations and training of aircraft. The Bureau makes recommendation to the other bureaus of the Navy Department in connection with all experiments, development work and production of material used or employed by aircraft. The Bureau of Aeronautics has cognizance over the policy, upkeep and operation of the Naval Aircraft Factory, naval aeronautic experimental stations, and the Helium Plant in so far as it comes under naval cognizance. The installation of ordnance material in aircraft and repairs of public works utilities at aeronautical shore establishments as well as their upkeep and operation are under the cognizance of the Bureau of Aeronautics.

The design and production of machine guns, bombs, bomb sights, camera guns and all aircraft ordnance is handled by a special section of the Bureau of Ordnance which is in close touch with the Bureau of Aeronautics. Anti-aircraft ordnance and equipment is also designed and produced by the Bureau of Ordnance just as it designs and produces all other ordnance material. As the Bureau of Ordnance has all the facilities for such work including cognizance over the naval ordnance plants and proving grounds, it would be a useless complication to transfer this work to the Bureau of Aeronautics which is now in the closest touch with the Bureau of Ordnance. Aeronautics neither requests nor desires that such work be turned over to it.

The Bureau of Engineering (radio division) designs and produces radio equipment for aircraft just as it does all other radio equipment. The Bureau of Aeronautics is consulted on this work in all its phases. A considerable part of the work performed at the Naval Experimental Laboratory at Bellevue lately has been in connection with aircraft radio equipment. It is commonly accepted that the Navy has within its organization some of the

foremost radio experts and designers in the United States. We have recently seen one of their developments in the remarkable results achieved in connection with the radio equipment of the *Shenandoah*. Published results show communication between that airship and the *Canopus*, 4,000 miles distant. To duplicate the present radio design division of the Bureau of Engineering would be impossible without either disrupting the present organization or taking a long term of years to equal. The Bureau of Engineering furnishes searchlights and other electrical equipment used in connection with anti-aircraft armaments and it would be highly undesirable to place this under a different organization.

The Bureau of Navigation has at the Naval Observatory a special section which handles all matters relating to air navigation and aerological instruments for the naval air service, in the same manner as it designs and produces corresponding instruments for use on surface and subsurface ships. This section is in close touch with the Bureau of Aeronautics and it would be a useless duplication of effort to transfer the production of these instruments to the latter Bureau.

The Bureau of Yards and Docks has a special section of its design division which handles all matters connected with public works at air stations in so far as relates to their designs, plans, specifications, and estimates. This section is likewise in close touch with the Bureau of Aeronautics and the present system is not only economical but satisfactory to both Bureaus and the Navy at large.

The Bureau of Supplies and Accounts handles all matters connected with pay, accounting, purchase, issue, contracts, fuel, and stores for the naval air service just as it does for all other portions of the Navy. Similarly the Bureau of Medicine and Surgery has cognizance of the health, sanitation, hospitalization, medical and dental treatment for the naval air service, just as it has for all other branches of the service. This Bureau has been engaged for a long time in studying the particular phases of aviation medicine and many members of the Medical Corps of the Navy have qualified in such subject. The Bureau of Construction and Repair handles all matters in connection with the design and construction of aircraft tenders and carriers in the same manner as for any

other surface craft, being guided by the recommendations of the Bureau of Aeronautics.

In the Naval Aircraft Factory the Navy has what is probably the finest and best equipped plant for the production of aircraft anywhere in the world. On account, however, of a definite policy intended to encourage private designers and also assist our commercial aircraft industry, this plant is used only for development work on new designs and for major repairs to aircraft and equipment; operating in this latter connection much as a navy yard does for ships. The Naval Aircraft Factory can, moreover, be considered as a reserve for quick and effective war time production of aircraft and aviation material.

So far as operation of aircraft is concerned, the Navy operates them just as it does its submarines or battleships, that is, as a part of the fleet under the local commanders in the field. All officers who command aerial squadrons, groups, and divisions in actual operations are flying officers. Air stations and bases are operated as are other shore stations, that is, as part of the naval district facilities under the general command of the district commandant.

On account of the special requirements which are necessary and in view of the wealth of experience and talent at its command, the Navy should continue, as it has in the past, to design and construct its own aircraft. To set up another bureau or agency of the government for this purpose whose interests would not primarily be bound up with the interests of the Navy as a whole, as now are those of the Bureau of Aeronautics, would be a step backward. The designs worked out by the Bureau of Aeronautics have so far certainly been as successful in the long run as those of any other agency specializing in aircraft, and at least one of the Bureau's designers now enjoys an international reputation as a specialist in aircraft design. The creation of a central government bureau of design or production would necessarily involve the removal of the personnel of the present design division from the Bureau of Aeronautics to the new bureau, since the field of special talent for such purposes is limited and there are few to draw from. With the same personnel employed in the central bureau instead of under the Navy Department it is hard to see where any useful purpose would be served by such new creation.

There is, so far as training pilots is concerned, very little difference in the preliminary training of army and navy flying officers, although it is likely that the Navy specializes more in seaplanes and the Army in land planes. So far as the higher training for war is concerned there is a very great difference. Special training is required to become an efficient naval aviator. He must train with the fleet air arm. He carries on yearly training with machine guns, bombs and torpedoes, as well as constantly trains in radio communication, spotting and reconnaissance. Gunnery, torpedo and bombing exercises for aircraft are carried on under fixed and universal rules promulgated annually by the Division of Fleet Training. This office also collects and carefully analyzes the results of such practice in order that they may be published to the service at large with a view toward systematic improvement.

So far as reconnaissance is concerned it is admitted that it is much easier in daylight to see a ship from an airplane than to locate a battery concealed in a forest, but, the identification of the type of ship, of her probable movements and the interpretation of the significance conveyed by several such contacts in a short space of time, such as would occur in locating an enemy fleet, requires special naval training and experience. It is also admitted that spotting by splashes is much easier at sea than artillery observation on shore, but the effective control of the fire of a fleet at long ranges, with many ships firing nearly simultaneously and with shots falling continuously over a vast area, is one of the most difficult problems which human ingenuity has ever been called upon to solve. The naval airplane observer must be thoroughly conversant with the manner in which the solution of the many problems involved is attempted.

While the preliminary training, and probably the aerial combat training, does not differ materially in the army or navy air services, the proposition that has been advanced to form a single school for joint training is not believed to possess any advantages. The Navy has at Pensacola a thoroughly well equipped establishment for training naval aviators. Any school which trains naval personnel in flying duties must obviously be located on the seacoast where facilities for spotting and torpedo launching can be provided. No inland station would be satisfactory. The establishment of a single school for training flying officers for both services would therefore

involve large expenditures in creating a new air station with additional facilities to those already in existence, and the slight benefits to be gained would not be proportional to the additional expenditure.

All naval air stations are situated on the water, whereas most of the army air stations are inland. The naval air stations are employed in the upkeep and maintenance of naval aircraft used primarily in connection with the fleet. If aircraft are employed they must have such bases. In addition these air stations serve as bases for the operation of aircraft employed in connection with the district naval forces such as mine sweepers, patrol vessels, guardships, and the defensive sea areas. The duties assigned respectively to army and navy aircraft in connection with war operations should not conflict provided the policy laid down by War Department General Order No. 20 of June 30, 1924, and Navy Department General Order 132 of July 7, 1924, is strictly observed.

There are only a few localities where there is any possibility of duplication of facilities between the army and navy air services and these have been the subject of recent exhaustive studies by the Joint Board with a view to preventing any duplication of effort. The Army and Navy Aeronautical Board now regulates the joint use of the facilities provided by each service and there is no reason why the fullest cooperation cannot be effected under the present system. If new coastal air stations are established there is nothing in the present system that prevents the joint use of the facilities so provided by both services.

Under the present system there is a healthy competition between the design divisions of both the Bureau of Aeronautics and the Army Air Service along lines which are profitable to both. Under a united organization such competition, which is to the best interests of aircraft development, would be totally lacking. Which of the two types, land or seaplanes, will in the future attain the greatest development, cannot now be estimated. It is probable that we may expect on the continent of Europe the greatest development in land planes due to the geographical position of the great military powers. Elsewhere, and notably in the United States, which is so far separated from the other powers, it is reasonable to expect that the development will be most pronounced in seaplanes. The Navy is the best qualified to carry on such development in the United States.

The navy and army air service do not compete to any extent for mechanics for aviation or any other skilled enlisted personnel. The Navy has been in the past, and may be expected to be in the future, forced to train its own mechanics. The Navy is one of the greatest practical schools for training mechanics now in existence and thousands of former naval personnel so trained are now to be found everywhere in civil life. Few of those trained remain in the Navy, as it can offer little against the competition of automobile agencies and electrical firms everywhere who offer a comparatively easy life and high pay on shore. A united air service would do nothing to overcome this form of competition for trained men.

Unquestionably ships can be sunk by aerial bombs. They can and have also been sunk by gunfire, torpedoes and mines, as well as by other agencies. They are not, however, entirely helpless against this new form of attack just as they have proved not to be entirely helpless against other forms of attack, as such have been elaborated. Against the aerial bomb ships will oppose increased resistance to both deck penetration and the mining effect of such bombs. Ships will also counter aerial attacks not only with improved anti-aircraft gunfire, but by opposing their own combat planes to the aircraft of the enemy. Much has been made of the comparative inefficiency of the ship's defense against night aerial attack. The difficulties of meeting such attack successfully are many, but, on the other hand, the problem of locating a ship or a fleet in darkness is fully as difficult for an airplane as for a submarine or destroyer, if not more so, on account of the impracticability of using listening devices on aircraft. The difficulty of making a successful night bomb or torpedo attack will certainly be a very considerable one for aircraft to solve if the target ship, as is probable, refuses to use her searchlights.

While one bombing plane or squadron of bombing planes may conceivably, under the most favorable circumstances, sink a battleship, yet it would require a very great number of squadrons stationed all along our coasts to insure that every enemy ship approaching these coasts would at least be attacked. In order that such attacks may be delivered, we must have a vast fleet of long radius observation aircraft to detect and give warning of such hostile approach. The bombing squadrons themselves must be

escorted and aided by large numbers of combat planes in order to get home their attacks against the probable enemy counter-action. All this makes for a very great air force. Owing to the rapid deterioration, obsolescence and many casualties of and to aircraft, practically all the material of the air force requires complete replacement at frequent intervals, estimated now as three years for most of the aircraft types. The large ground establishment necessary to maintain a squadron of aircraft makes the air arm very expensive both in men and money. Whatever may be its relative military value, it will be found that an air force is a very expensive means of defense under any circumstances just as it proved to be during the late war. So far as cost is concerned there would certainly be no reduction in government expenditures for national defense, even if we should be so short sighted as to scrap our entire Navy and rely entirely upon our air forces for defense against overseas attack.

Unquestionably, large appropriations should be made for aviation, but the claim that little is being now done in the Navy for this important branch is not borne out by the facts. Last year Congress gave for naval aviation the sum of $15,150,000, which amounted to five and five-tenths per cent of the whole naval appropriation, but this is misleading if we try to compare it with the amounts voted for the Royal Air Force of Great Britain, for instance. The above sum of $15,150,000 covers only the actual maintenance and operating expenses of our naval air establishments afloat and ashore including the purchase of new aircraft and construction of new public works. It does not include pay, clothing, and rations of the personnel, hospitalization, accounting, freight, salaries of civil employees at the Navy Department, equipment and ordnance of aircraft and other items cared for by other naval appropriation subheads. If all these were included it would be found that our naval aviation arm is costing us not less than $25,000,000 annually. This all comes out of the navy budget, although many other deserving items must suffer in consequence.

So far as the charge of neglect of aviation is concerned, close examination will show that the Navy Department is straining its resources to maintain and build up its aviation branch. As a matter of fact, the Bureau of Aeronautics probably comes much nearer getting in the budget all it asks for than does any other

bureau. Naval Aeronautics has a definite building and maintenance policy which has been recommended by the highest military and naval authority of the government, the Army and Navy Joint Board, and so far as funds are available, it is strictly carrying out this policy.

The above offers what is believed to be conclusive evidence that aviation is now being developed within the Navy to the maximum extent consistent with the means available. There is, on the other hand, not only no evidence at all that aviation material for naval needs will be more rapidly developed if the air service was assigned to an independent organization, but there are the best of reasons for believing that such development would be handicapped by any such change. In the final analysis development along military technical lines must be predicated upon the enthusiasm, patriotism, and loyalty of the personnel who are engaged in the work. There is no reason to believe that these qualities would be improved if the present personnel now assigned to naval aviation were transferred to an entirely separate and independent department.

So far as actual experience in war or peace time maneuvers go, all seems to show that naval aviation can best contribute to the national defense when it is employed as an arm of a fleet which comprises all units.

It May Be Accepted that the Mission of an Army and Navy is to Maintain the National Policies.

Aviation as a separate arm can have no other or distinct mission. The operations necessary to accomplish this mission can best be performed through thorough and whole-hearted cooperation of the land and sea services, including the air arms attached thereto. This cooperation has, in the past, been found to be very difficult to effect. The introduction of a third and independent arm not only multiplies the friction at every point of contact, but in actual practice makes efficient cooperation almost impossible to attain.

Long experience in actual operations has shown that in any given theater of war, whether on land or sea, there can be only one command. Any other system is impracticable and inevitably breaks down when subjected to the stress of campaign and battle. The present division between land and sea forces, is such that the question of the joint high command is seldom raised, and when it is, there are certain formulæ which may be applied to answer it.

With the independent air service we would insure that such question of the joint command would be raised everywhere and in every place. We have not yet progressed to the point where we are willing to subordinate our fleets or our armies to the single command of the air service.

Proponents of a united and independent air force point to the Royal Air Force of Great Britain as a precedent and an example to support their contentions. Anyone reading the leading newspapers and professional journals of England for the past two years will find that the organization of the air arm is far from satisfactory to a large number of people and particularly to the Admiralty. So objectionable did the separate air arm become in actual practice so far as the navy was concerned, that it was necessary recently to have the whole organization referred to the Committee of Imperial Defense.

Many modifications were recommended by this committee, some of which have just been placed in effect. Even these modifications have not apparently been sufficient to still the controversy between the Air Ministry and the Admiralty.

Under the system now in effect the Admiralty to a great extent furnishes the personnel for the fleet air arm. Royal Air Force officers of the permanent establishment are very much in a minority in such arm. The design of material is recommended by the Admiralty and the material supplied by the Air Ministry must be satisfactory to it. The Admiralty has complete control of the fleet training and operations of the fleet air arm. In the final analysis about all the Air Ministry has to do is to oversee the manufacture of the airplanes and engines used in the naval air service. We believe our system is much less complicated and is the more logical.

On the other hand, careful examination of the organization of the Royal Air Force will show that it parallels and duplicates practically every activity of the Admiralty. The Royal Air Force has, for instance, its own corps of supply officers, medical officers, dental officers, civil engineers and even chaplains and nurse corps.

So far as our own commissioned personnel assigned to aviation is concerned, it is believed that the unsatisfactory conditions of which they now complain may be remedied by very slight changes in the existing laws and administrative orders of the Navy Department.

The law defining sea service should be amended by inserting a proviso that sea service shall also be construed to include service on airships of the Navy regularly commissioned and also duty as a pilot, observer or member of the crew of any aircraft regularly assigned and maneuvered as a part of an air wing, division or squadron, regardless as to whether such wing, division or squadron is attached to a naval carrier or tender afloat or to an air station on shore.

So far as promotion is concerned, it is believed to be practicable to handle this matter satisfactorily without forming a separate aeronautical corps. We already have too many corps in the Navy. Efforts should be made toward consolidation of corps rather than the creation of new ones.

Flying is generally admitted to be essentially a young man's game. There are comparatively few assignments in an aviation service proper which can be filled satisfactorily by officers who are much past middle age. In this an air service differs from the line of the Navy or any other corps. In any aeronautical corps there will thus be no justification for any but a very small percentage of officers in the higher grades. Promotion in such a corps would therefore have to be based on rigid selection and compared to other corps, advancement to the higher grades would be very infrequent. It would appear that instead of leaving young officers to grow old in the junior grades of a separate corps, it would be better to return the excess to the line or other corps from which they came when they reach the age where they no longer qualify for the strenuous duties of regular and continuous flying.

The most economical procedure to be adopted would be to provide for the selection each year from the commissioned personnel assigned to flying duties, who are nearing middle age, of the few officers who are necessary to fill the higher executive or technical positions in aviation. Officers so selected would be carried for aeronautical duties only and might well be included as extra numbers on the navy list and given a preferred selection status just as are our engineering specialists. Those not selected would return to the corps from which they came.

It is not anticipated that there will be any difficulty in securing Congressional approval for the above proposed changes in the laws governing the Navy.

An organization which retains naval aviation as a constitutent part of the Navy is logical, efficient and militarily sound. This system now exists in the United States Navy. No change in this system is desirable and none should be made until actual experience shows that some other system offers greater advantages to the national defense interests.

The advantages to be gained by a separate air service are not apparent on close examination, such as has been attempted in this article. On the other hand it has been shown that such a separate and independent air service is not only militarily unsound, but is unnecessary and involves useless complication in the organization for the national defense, and would inevitably cause extravagance and waste of the government finances.

JOINT ARMY AND NAVY OPERATIONS, PART III

By Captain W. S. Pye, U. S. Navy

IN "Joint Army and Navy Operations," Part II, published in the Naval Institute Proceedings for January, it was stated that operations of the Army and Navy within the theater of operations are of four general types:

(1) Independent operations of the Army and Navy, in which there may be cooperation in the selection of objectives and in the strategical plans, with but little or no physical cooperation in the execution of such plans.

(2) Physical cooperation in large operations, such as invasion, capture of an enemy fortified base, etc.

(3) Physical cooperation in operations undertaken with a minor strategical or tactical objective, such as the seizing of an enemy isolated base or the destruction of harbor facilities, etc.

(4) Physical cooperation as a result of circumstances, which cooperation has not been provided for by specific plans, as in the operations of coast defense.

The necessity for cooperation in the selection of the major objectives of the Army and Navy, and the great success which has attended such cooperation in the past, is often overlooked in the casual study of history. More often than not, in the past, such cooperation has resulted from conditions rather than as a result of definite plans. In the future joint plans should ensure the most effective cooperation in this respect.

The principal forms which such cooperation has taken in the past are:

(a) The Navy by attacking enemy trade and lines of communication, reducing supplies and reinforcements of the enemy army to such an extent as to cause its defeat by the cooperating Army.

(b) The Navy by suppressing trade and transportation to an enemy nation, so reducing its economic activities as to prevent the

maintenance of its fighting forces at their maximum efficiency, thus aiding the Army to defeat the enemy army.

(c) The Navy, by attacks on enemy trade and colonies, forcing an enemy fleet to leave unguarded an area through which an army might be transported without danger of serious attack.

Perhaps the best example of the first form is found in the operation of the British squadrons in the Mediterranean following Napoleon's landing in Egypt.

The victory of Nelson's squadron at Aboukir, and the destruction in Alexandria of many of the ships which had been used by Napoleon's Army, together with the blockade operations which the British, because of their victory, were able to carry out effectively, prevented the supply, or adequate reinforcement of the French Army in Egypt, and eventually forced defeat upon this attempt to overthrow England's power in India.

A somewhat similar experience happened to the British at the seige of Yorktown. A British squadron with supplies and reinforcements for Lord Cornwallis was off the capes of the Chesapeake but, due to the strength of the French squadron in the bay, it could not come to Cornwallis' relief and his army was defeated.

A good example of the second form is found in our own Civil War. There were no Confederate squadrons, in the sea-going sense, and the primary duty of the Federal Navy became that of blockade and the protection of commerce against privateers and raiders. It is doubtful if the effect that this blockade would eventually have on the Confederate Army was fully realized at the time. It did have a determining influence on the result of the war, for, by suppressing trade between the Confederate states and Europe, the Confederate Army was deprived of arms and ammunition and eventually medicines and clothing. The Confederate Army was defeated largely because of the exhaustion of essential supplies.

Under modern conditions of life and the developments of modern war, nations are more than ever dependent upon trade with foreign nations to provide those materials which are not supplied within their boundaries by nature. In each succeeding war freedom of transportation will become more essential to the development of maximum military and naval power, because as populations increase, nations become less and less self sustaining.

This form of cooperation is also seen in the use of the German raiders and submarines in the World War. These raiders and submarines had destroyed so much shipping that, in the late summer of 1917, it became a question as to whether it would be more advantageous to the allies to send United States troops to France or to stop transportation of troops and use all vessels in the transportation of food and munitions. Had the German submarines been able to keep up their successes of the spring and early summer, April to June, 1917, there can be little doubt but that Germany would have won the war through the exhaustion of the Allies' supplies. This shortage would have so weakened the allied armies that the German Army would have defeated them.

The third form is best illustrated by Napoleon's attempt to force the withdrawal of the British Fleet from the English Channel in order that he might invade England. His plan was to concentrate, at Martinique, the French and Spanish squadrons from Toulon, Cadiz, Ferrol and Brest, and, without engaging the British squadrons which it was hoped would be sent after them, these squadrons were to return to Boulogne as a combined fleet, thus giving the French command of the Channel for a period sufficient to complete the invasion of England. This plan was well conceived but failed in execution because of the inefficiency of the French and Spanish Navies of that date, and of the many difficulties attending strategic concentrations in a period during which communication was limited to visual distance.

The second type of cooperation is: Physical cooperation in large operations.

As was pointed out in the previous article, cooperation of this nature requires important strategical decisions and can be made effective only by the exercise of joint directive command.

In this type are the following forms of joint operations:

Those in which army interests are usually paramount:

(1) Invasion.
(2) Seizure of enemy colonial possessions.
(3) Use of an army overseas to create a diversion.
(4) Army cooperation with an allied nation.

Those in which navy interests are usually paramount:

(5) To seize a base for fleet or joint offensive operations.

(6) To destroy an enemy fortified base.
(7) To destroy a blockaded enemy fleet.
(8) To exert or relieve economic pressure.

All of these operations require the transportation overseas of large armies, and are among the most difficult of the operations of war. There are certain conditions which must exist prior to undertaking any of them.

A decision to attempt operations involving the movement of large armies overseas presupposes:

(a) *That the Navy has gained command of the sea, or is sufficiently powerful to maintain command of the sea in the vicinity of the landing, and permanently to insure the integrity of the lines of communication.*

(b) *An available merchant marine adequate to the transportation of the Army, to the maintenance of the fleet and Army in the theater of operations, and to the maintenance of effective war time trade.*

(c) *An Army adequate in size, and suitably organized and equipped.*

(d) *A satisfactory state of training for joint operations in the Army and Navy.*

(e) *Available bases suitably located with reference to the strategical objective.*

There is no condition so necessary to successful joint operations as command of the sea, and it must be thoroughly understood that, in these modern days, command of the sea means not only control of the surface of the sea, but control of the air above and of the water below the surface.

These added conditions, due to advent of the airplane and the modern development of the submarine and mine, have added greatly to the difficulty of conducting joint operations in the vicinity of the enemy coast or naval bases. An army is never so impotent as when embarked on unprotected vessels for transportation overseas. The fleet is never so handicapped as when escorting a large convoy of transports.

So disadvantageous is a situation requiring the movement of large bodies of troops by sea that it has become almost an axiom that command of the sea shall be gained by the defeat of the enemy

fleet before such movement shall be attempted. The adoption of such an axiom is an error, for the danger from the enemy fleet is dependent, not only on its relative strength but also upon many special conditions.

The British Army was transported across the Channel before the German Fleet was engaged. In this case conditions permitted the movement of troops in small numbers, through restricted waters, and to friendly ports, and was comparatively simple compared to moving a large army and its equipment in one operation. The Japanese in the Russo-Japanese war moved troops into Corea before the Russian Fleet was defeated, but the Japanese Fleet maintained a blockade of the Russian Fleet during this period. In neither of the above cases was the landing opposed. If opposition to landing is encountered the operation is much more difficult. History relates few instances of successful attacks on troop convoys, but, in this case, the operations of the past cannot be used to prophesy the future, for conditions with regard to motive power, accuracy of navigation, means of communication, and available means of attack have completely changed.

As a consequence of the greater effectiveness of modern weapons, modern ships, air scouting, and radio communication, and of the increase in size of armies and of the complexity and amount of their equipment, large joint operations are becoming increasingly difficult.

In the types of large operations in which army interest is usually paramount there are certain advantages which favor the offensive. Some of these advantages pertain to the period prior to landing and others to the operations after landing.

The advantageous conditions favoring the offensive prior to landing are:

(1) *The initiative; the offensive force, proceeding by sea, has the choice of the time and place of attack, and of the route of approach.*

While the value of the initiative is always great, in modern times it is of less value than in the past, because modern systems of communication and transportation permit concentration of the defense with an accuracy and speed undreamed of in the past. Although dispersion of force is an inherent weakness of the defense, such

dispersion is not now so much a function of distance as of time to concentrate.

(2) *The ability to make feints and ruses.*

This advantage is inherent in the offensive, but is perhaps more valuable at sea. By virtue of the speed of modern vessels a convoy can move a hundred miles during one night. Transportation of a defensive force on shore to meet such a movement would probably disorganize land transportation, especially if it were done several times.

General Wolfe took advantage of this mobility of embarked troops during the seige of Quebec. By permitting the ships to drift up and down the river with the tide, he made it impossible for the French to determine his anticipated point of attack. The defense was forced to disperse to meet possible attack at varying points and was completely surprised when the attack did develop on the Heights of Abraham.

Types of ships are hard to distinguish at sea and it is quite possible that supply ships and fuel ships might feint at one point while the actual landing was being prepared at another. It will be difficult for scouts, either air, surface, or submarine, to determine the exact nature of auxiliaries accompanying a naval force.

(3) *The covering fire from warships is the greatest possible concentration of modern artillery.*

In order that the fire from warships may be of the greatest assistance in joint operations, it must be controlled from the air or from elevated observation spots on shore. The ammunition usually supplied to naval vessels is not suitable for use against shore defenses and the trajectory of the projectiles is too flat. These points can be overcome by preparation for this type of operations.

After landing is effected the offensive army with sea communications has several other advantages:

(1) *Maritime communications reduce the percentage of troops required to guard the line of communications.*

(2) *Maritime communications facilitate the shifting of the base of operations to conform to the movement of the troops.*

(3) *The naval forces can assist in guarding the flanks where they rest upon the shore.*

(4) *The sea furnishes a secure line of retreat in case the operation must be abandoned.*

There are, however, many difficulties, other than those created by the enemy forces, which must be overcome by the offensive force. Among these are:

(1) *Unfavorable weather conditions.*

(2) *Unfavorable landing places.*

(3) *Difficulties of landing, especially if landing is opposed.*

(4) *Difficulties of transportation after landing, due to the limited amount of transportation equipment and to the destruction of transportation facilities by the enemy: i.e., roads, railroads, bridges, etc.*

(5) *Danger of having communications cut off by enemy or allied enemy fleet.*

(6) *Troops unused to seagoing, kept for any length of time on board transports, lose a certain amount of their fighting efficiency.*

(7) *Unless trained in landing operations troops will be awkward and unhandy in boats, and in operations immediately after landing.*

Most of these disadvantages will be discussed in detail in a later article when the subject of the disembarkation is discussed.

Invasions.—History cites examples of successful invasions by way of the sea, but, likewise, it records many failures. The successes were mostly in the distant past, except for a few cases such as the war between the United States and Mexico where the efficiency of the invading forces was so superior as to insure success.

Perhaps the two best examples for the purpose of study are McClellan's Peninsula Campaign and the Dardanelles Campaign.

Each of these campaigns failed to achieve its major objective, although the fighting of the offensive troops, in both, was excellent. The campaigns failed through the mistakes, or lack of judgment, on the part of superior authority.

McClellan's plan, as approved by President Lincoln, was strategically sound. The transportation of troops down Chesapeake Bay was, under the existing circumstances, fairly well done; but later interference by the President, lack of cooperation by the Navy, disloyalty to the commander-in-chief, and a lack of force on the part of the commander-in-chief himself, caused the opera-

tion to fail with the consequent great loss of prestige to the Northern Armies and a corresponding increase in morale in the Confederate Army.

In the Dardanelles Campaign there was a thorough absence of cooperation between the Admiralty and the War Office, including the failure to determine a definite objective, and a woeful misconception of the force required for the success of the expedition.

Upon the arrival of the first army contingent at its base, Mudros, (which had been practically seized from Greece) it was found that the force was so disorganized and its equipment so poorly stowed, that it was necessary to send the transports to Alexandria where they could be discharged and reloaded properly.

Although the officers in charge of the base at Mudros, and the personnel assigned to the expedition, performed almost superhuman feats in preparing for and in conducting the attack, the campaign failed. The failure should be attributed to the Admiralty and War Office, because of their failure to determine the forces required for the task and for their lack of support of the forces in the theater of operations.

As a result of the poor preparation of the allied forces and of the delay in the attack, due to lack of support from the military and naval authorities at home, thousands of lives were lost; allied prestige received a severe blow, and Turkish and Teuton morale was increased.

The chances for success of an invasion by forces transported overseas are becoming smaller and smaller. The greater facility of movement of forces on shore by railroad and motors; the rapidity of communication; the increase in power of mobile artillery; the increased efficiency of the submarine and aircraft, and the increase in size and effectiveness of regular armies and navies, have made invasion by sea almost an impossibility, at least until bases near to the scene of landing operations have been permanently secured, and command of the sea is permanently assured.

Seizure of enemy colonial possessions.—The operations required in seizing enemy colonial possessions are similar to those of invasion, except in extent. It is improbable that enemy colonial possessions will be as well defended as home territory and the lack of industrial facilities usually restricts defensive operations.

In the past, attacks on enemy colonial possessions have usually

been carried on: (1) To destroy enemy trade; (2) to seize territory with a view to demanding its cession, or using it for trading purposes, when peace is made; (3) to force an enemy to engage in a theater of operations unfavorable to him.

The attacks by the British on the French possessions in India (Pondicherry), under Clive and Admiral Watson, is an example of an attack to destroy enemy trade. Even at that early date the British saw the possibilities for trade offered by India and southern Asia and seized the opportunity to destroy the French colony which threatened British supremacy in that region.

The capture of Formosa by Japan at the end of the Chino-Japanese war is an example of the seizure of an enemy colony with a view to demanding its cession in the treaty of peace.

The capture of Minorca by the British in 1798, although it had some strategical value as well, is an example of a capture made for trading purposes.

The transportation of armies to engage the enemy in a theater of war unfavorable to him is well shown by the use of British troops in the capture of Louisburg and Quebec. The British were at this time fighting France in alliance with the South German States, and Frederick the Great was able to oppose the French on land without British assistance. With Britain's control of the sea it was considered that the British Army could be used to better effect in defeating the French in Canada than as a part of an allied army in Europe.

The use of the British Army in these operations was likewise in the nature of a diversion, but as it was improbable that France could reinforce her troops in Canada, it was not truly a diversion. An effective diversion requires that the enemy shall be forced to withdraw from the main theater of operations a force superior to the force used in the diversion.

Use of Army Overseas to Create a Diversion.—Examples in which such diversions have been successful are not frequent, but during the period in which Pitt controlled the strategy of Great Britain, the Seven Years War, operations of this nature were successfully carried out by attacks upon the French coast, notably at St. Malo and Belle Isle. These attacks, in addition to effecting considerable local damage, caused the French to withdraw troops for defense which could have been employed more effectively in

the main theater of operations. Lord Mahon, in writing of the attack at St. Malo, states: "There is no doubt that the damage done to the French shipping had been considerable, and that the apprehension of the approach of this expedition had effectually withheld the French from sending any succours to Germany."

Army Cooperation with an Allied Nation.—The joint operations pertaining to the transportation of an army to assist an allied nation are the most simple of any joint operations. This is well illustrated by the transportation of our armies during the World War.

With friendly ports in which to disembark, and allied supplies on which to fall back in case of temporary delay in transportation, the operation involves little more than transportation through waters which may be disputed by the enemy.

The joint operations in which the Navy's interest is paramount ordinarily have a definite strategical objective. As a consequence the enemy can usually determine this objective and it is probable that the defense will be strong.

To Seize a Base for Fleet or Joint Offensive Operations.—Modern fleets cannot operate without bases, nor is it probable that major joint operations can be successfully conducted without a base of operations in the vicinity of the major strategical objective. In planning for the seizure of a base it is necessary to provide not only for its capture but for the defense of the base after capture. The forces must be carefully organized and equipped for this double rôle. It is improbable that the defense will be very strong unless it is a defended base. It is seldom that a defended base would be seized first, as such an operation requires major operations of such magnitude that a temporary base from which to operate is essential.

The capture of Guantanamo Bay as a base of operations for the forces engaged in the blockade and operations at Santiago de Cuba, is an example of this type. In this particular case opposition was insufficient to require joint operations, as the Marines were capable of performing the required operations on land.

In preparation for the Dardanelles Campaign the British seized several Greek islands. They were not opposed. The bases would have been equally necessary had they belonged to Turkey and in such event a preliminary campaign to capture the islands would have been required.

To Destroy an Enemy Fortified Base.—The capture of an enemy fortified base is usually undertaken only when it protects an enemy naval force, or is required as a base for one's own force. Although the enemy fleet may not be using the base at the time, the base may have a potential value sufficient to warrant major operations to destroy it.

On several occasions during the wars between Spain and England, Cadiz has been attacked by the British, as have Brest and Toulon during the wars with France. While some of these attacks were in the nature of diversions, the strategical objective was selected because of the damage which could be done to these enemy bases and the shipping therein.

An attack on a defended base by joint forces from over sea is most difficult. The advantage of the initiative relating to the place of attack is lost. The enemy is prepared for defense and has complete local knowledge of the port and the terrain.

The advantages of the defense are such that a direct attack can seldom succeed and in most cases, in the past, landing has been effected at some distance from the port and operations similar to seige operations have been undertaken.

To Destroy a Blockaded Fleet.—The operations to destroy an enemy base, as in the case of Port Arthur and Santiago de Cuba, often have as a primary mission, the destruction of a blockaded fleet, or the forcing of it to sea in order that it may be destroyed by the naval blockading force.

The presence of a fleet in the base has a bearing on the tactical plan of the operation. Heavy seige artillery will be required, and points from which such artillery can reach the blockaded ships must be taken.

The operations of the Japanese at Tsingtau in the Chinese War and at Port Arthur in the Russo-Japanese War, are interesting and profitable examples of this type of operations.

To Exert Economic Pressure.—Examples of operations undertaken primarily for this purpose are more or less difficult to find. The Dardanelles Campaign has been cited as invasion and, so far as the military-naval operation is concerned, it was an attempted invasion. The real objective, however, was to relieve economic pressure upon Russia, and upon the Allies. The defeat of Turkey would have opened the Bosphorus and permitted the Allies to fur-

nish munitions of war to Russia in exchange for Russian wheat. Some of the allied operations in Asia were undoubtedly conceived with the idea of preserving the use of essential fuel oil to the Allies.

With the increasing demand for raw materials it is not inconceivable that weak nations within whose boundaries are found fuel oil, coal and iron, may be invaded to insure such raw materials for the use of a stronger nation in war.

The third type of cooperation is: Physical cooperation in operations undertaken with a minor strategical, or tactical, objective.

In operations of this nature the objective is definite and a plan can be prepared in detail before the operation is commenced. Strategical decisions are of minor importance and joint directive command is not so essential. Under usual conditions the forces operating on shore in operations of this type will be marines, but in the absence of marines, army troops would be employed.

The primary objective is ordinarily the seizing of a minor base which is not defended by important fixed defenses, or the destruction of certain definite facilities belonging to the enemy. Command of the sea in the vicinity during the operation is essential. If the base is to be retained, defense against minor expeditions must be insured and the line of communications must be secure. If the objective is merely destruction of enemy facilities, command of the sea and security of the lines of communication is required only during the operation.

The fourth form of cooperation is: Physical cooperation as a result of circumstances.

Cooperation in offensive operations should always be the result of plans. Cooperation without plans is inexcusable except in defensive operations in which, by virtue of the enemy having the initiative, cooperation without definite plans may be required.

The regulations governing such cooperation have been quoted in a previous article. In general they provide, that if the enemy is approaching by way of the sea, the Navy shall have the paramount interest in the operation if the naval force available for opposing the enemy is approximately equal or superior to that of the enemy. If the naval force available is inferior to that of the enemy, it is assumed that the enemy troops can reach the shore and consequently the Army has the paramount interest.

The commander of the force not having the paramount interest

shall cooperate under general direction of the commander of the force having the paramount interest. The governing idea is to place the paramount interest with that force which, under the existing circumstances, is best able to prevent the enemy securing his objective. This idea should govern all cooperation which arises as a result of circumstances and for which no definite plan has been made.

In the above discussion comment has been limited to general considerations with a view to pointing out the motives and objectives of joint operations. Later articles will deal with the details of such operations.

The objectives have a determining effect on the size of the expedition and its equipment, but there are many points common to all joint operations. Among these are: (1) The preparation of the forces. (2) The embarkation. (3) The voyage. (4) The disembarkation.

The subject of the preparation of the forces will be discussed in detail in the next article.

A DESTROYER IN THE NEAR EAST

By Lieut. Comdr. Richard Stockton Field, U. S. Navy

0128 Designate two divisions of six destroyers each to proceed immediately to Constantinople for duty period This twelve shall be the best twelve and no changes will be made after receipt of your recommendation period 1400

ON THE afternoon of September 28, 1922, the greater parts of Destroyer Squadrons Nine and Fourteen were assembled on the Southern Drill Grounds, engaged in the old Atlantic Fleet sport of waiting for shooting weather. The above despatch from the Commander-in-Chief to the Commander of the Atlantic Destroyer Squadrons quite naturally threw a thrill into us. Every one of the destroyers listened impatiently at the radio for the reply of the *Rochester*. Such a trip would mean a lot to us. Smyrna had recently been burned and we had read and heard of thrilling doings in the Near East. There were thousands of American citizens in that part of the world and this suddenly ordered reenforcement of Admiral Bristol's squadron indicated that we were needed over there to protect them. There was no likelihood of any actual hostilities involving the United States, but there was unusual disturbance around Constantinople and no one knew what would happen next. Whatever might break would surely affect the interests, and possibly the lives, of American citizens and all on my ship were mighty keen on being among those present at the business end of the impending 5,000-mile voyage. Sooner than expected the reply was intercepted:

0028 Following destroyers designated *Hopkins Gilmer Fox Kane Hatfield Bainbridge McFarland Overton Sturtevant King Barry Goff* 1500

The commanding officers of the designated destroyers were soon assembled on the *Hopkins*, flagship of Captain Tozer, the squadron commander, who outlined briefly his plans for a quick get-away. Early the following morning we went in to the operating base at

Hampton Roads and spent three active days of preparation. On the morning of October 2 the twelve destroyers, led by the *Hopkins,* filed out of Hampton Roads. The squadron commander received complimentary signals relative to the quick and efficient manner in which the ships had got away. All of us felt a certain pride in the fact that our twelve ships had proceeded within four days. Except for a large number of new men aboard, we were ready for war when we started.

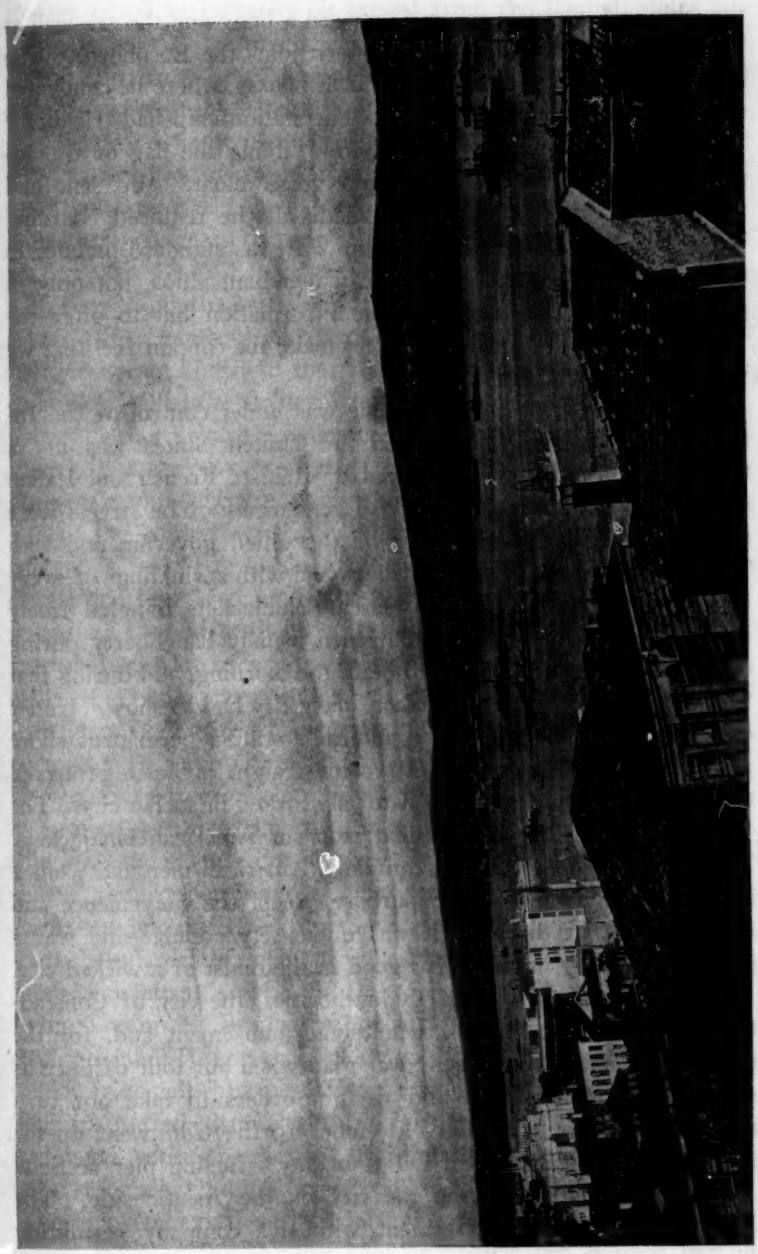
The European duty was very popular with officers and men alike. Our allowed complement was 106 men. We might have taken twice that number if immediate availability of hands had been the only consideration. Commanding officers were, for once, in a position to fill their complements. Men appeared from everywhere with bags, hammocks and transfer papers. There was a tremendous satisfaction in feeling that we were going on an expedition in which we were jealously envied by so many. Christenson, the dory coxswain of the *Bainbridge,* had been enjoying several days' rest in a sick-bay bed aboard the repair ship *Bridgeport* when he heard that his ship was going to Europe. Immediately he got up and dressed and when the doctor came around his patient was industriously plying a swab on the deck of the sick bay. In spite of his protests of recovery the doctor ordered him back to bed and stuck a thermometer into his mouth. The next morning when the doctor made sick call he found Christenson earnestly polishing the hospital brass. Still uninfluenced by such signs of convalescence the doctor once more put his patient to bed. Time was getting short. The destroyers were sailing the next day. The would-be traveler abandoned strategy and adopted tactics. The next time the doctor visited the sick bay Christenson was gone. He had eased over the side at midnight, swum to the *Bainbridge* and hid himself in a cold boiler until the ship was well on her way to Europe.

On October 14, after a pleasant crossing of the Atlantic, we arrived at Gibraltar where we found Admiral Long, our European force commander, with the *Utah* as flagship. After two days of fueling and minor repairs we continued our eastward voyage. We had crossed the ocean at an economical speed of thirteen knots, but now, with a shorter distance to go, we made standard speed, seventeen. After four days, during which we skirted the northern coast

of Africa, the southern edge of Sicily and threaded our way among the islands of the Ægean Archipelago, we arrived on the morning of October 21 at the entrance of the Dardanelles. Dozens of British war ships were up and down there and we knew that they would look us over with expert eyes. We passed them at seventeen knots, well closed up with "tails over the dash board." We were feeling that voyage-end thrill known only to sailors and, although the idea may have been unfounded, it was at least pardonable to imagine that our English friends were saying, "Here come the Yanks! Don't they look great!" After passing through the Chanak narrows we slowed down so as to arrive at Constantinople the following morning.

The American Navy had been continuously represented at Constantinople since the early days of the Armistice. The *Scorpion* had been there as *stationnaire* for about fifteen years, but she is only a yacht and her mission had been social rather than military. Rear Admiral Mark L. Bristol, U. S. Navy, went to Constantinople early in 1919 as commander of the American naval forces in Turkish waters. Soon after he had assumed that duty he was appointed by the President as high commissioner to Turkey and ever since had served in the dual rôle of naval commander and diplomat. He had two staffs, the one made up of diplomatic secretaries of the State Department to assist him in his capacity of high commissioner, the other of naval officers to aid in the administration of the admiral's naval command, which at times reached extensive proportions. The personnel of the diplomatic staff and that of the naval staff worked together in the most complete accord, and the admiral always had the maximum of personal and official loyalty from naval officer and diplomat alike. Previous to the arrival of Squadron Fourteen the American forces in Turkey consisted of the *Scorpion* and eight destroyers. These ships and others which had preceded them had rendered untold aid to our business enterprise in the Near East, and their assistance in relief work had made it possible for the organizations engaged in that work greatly to increase the scope and effectiveness of their trying labors.

Within two days after arrival the ships of our squadron had taken up the duties of the station. Some went to the Black Sea and some went to the southward. The *Goff* was assigned as sta-



MEN-OF-WAR OF FIVE NATIONS AT CONSTANTINOPLE

tion ship and, as such, moored between a buoy and the sea wall at Tophane, just where the Golden Horn joins the Bosphorus. The admiral's office was in the American Embassy, where he conducted the affairs of his two functions. The station ship had telephonic communication with the Embassy and, flying the flag of the admiral, acted as his eyes, ears and voice afloat. We sent and received all radio messages and made all the required boarding visits to American and foreign ships. It was standard practice to send an officer aboard all American merchant ships, not only to give and obtain the usual routine information but to offer the Navy's services and facilities and to make the captain feel that we were there to help him.

In October, 1922, Constantinople was under control of the Interallied Commission (of which the United States was not a member) and the city was policed by British, French and Italian soldiers, ably seconded by Turkish gendarmes. The streets were filled with soldiers and sailors of the allied governments, with Turkish soldiers, sailors and civilians and with sprinklings of every nation of the world. The American bluejackets mingled freely in this cosmopolitan whirl. Our men usually had liberty during the afternoon, extending until one in the morning, and during that time they saw all that this extraordinary city had to show. Under direction of a member of the admiral's staff a permanent shore patrol not only kept our liberty-men straight but also protected them from the dangers which naturally lurked in such a city. The Y.M.C.A. conducted an excellent club for American bluejackets. It was managed by virile, high-minded American men and women and, being conducted for no purpose except the convenience and entertainment of the men, it was immensely popular and was a great and healthy influence for good in the midst of a wicked city.

In spite of the efforts of the authorities, the city of Constantinople offered but little of wholesome amusement and, for the good of the ship's company, I was glad when our tour of duty as station ship was finished and we got orders to take our turn around the Black Sea. On November 19 the *Goff* went up the Bosphorus to the Standard Oil Company's fueling pier at Selvi Bournu, ten miles up from the city on the Asiatic side. The Navy had a working agreement with this company permitting

storage of oil in its tanks on arrival from the United States for later use by the destroyers.

The Bosphorus is fifteen miles long and about one mile wide and it forms the only egress for the waters of the Black Sea. As this great body of water is fed by dozens of rivers there is a constant flow of water from it, through the Bosphorus, toward the Mediterranean. During the spring thaw, and especially when a northerly or easterly wind blows on its 100,000-square mile surface, the Black Sea banks up and becomes a giant bath tub with the Bosphorus as its active drain pipe. Into the Bosphorus, between the Stamboul and Pera sections of Constantinople, flows another stream known as the "Sweet Waters of Europe," or more commonly called the Golden Horn, because in its richness of shipping this horn-shaped river was compared with the Horn of Plenty. As the current of the Golden Horn joins the Bosphorus it makes a counter current which sets up the northern or European side of the latter toward the Black Sea. The drift of the main current is from two to six miles an hour and the average of the counter current is about one mile. With these treacherous currents, in a port packed with ships, mariners had to use the greatest care to keep out of grief. In coming into port one was in the main or down current and the mooring buoys assigned to the American Navy were well over on the European side in the counter current. To get to these buoys one had to thread in and out between the dozens of ships which filled every available berth and, in turning, accurate allowance must be made for the drift of the ship with the current during the turn. There was also to be considered the extraordinary turning moment encountered in passing across the line of demarcation between the up and down currents. I have seen a destroyer jump fully fifteen degrees from her course as she got into this position.

In going up the Bosphorus one passes, about five miles from the city, at Rumili Hissar, the well known Robert College, an American school from which many of the modern Turks have graduated. This institution, through its careful abstention from proselyting, had come, with its sister, the Constantinople College for Women, to be recognized in high favor by all parties in Turkey.

On November 20 we set forth into the Black Sea. We had orders to go to the Russian port of Odessa but stopped first at

Varna, Bulgaria, to get information on Odessa from the U. S. S. *Kane,* which had just come from there. After a two-hour stop at Varna we continued toward the Russian port. My knowledge of conditions under Soviet rule was vague. I had heard much of the administration of the komisars and of the sinister activities of the *chekka,* or secret police. I did not exactly expect to see citizens shot down in the streets but I felt, and tried to make my shipmates feel, that we were about to go into something absolutely new to us and that it behooved us to act with the utmost caution. American destroyers had been making casual visits to Soviet Russian ports for more than a year, without experiencing trouble, their purpose being to keep in touch with the large organization of the American Relief Administration, or "ARA" as it was affectionately abbreviated by the Russians. This body, under the direction of Mr. Hoover and under the immediate charge of Colonel Haskell, was engaged in the feeding of children throughout Russia and the distribution of food packages in that country in exchange for remittances made in the United States and elsewhere.

We arrived at San Jeiki, the signal station twenty miles south of Odessa. In response to our international signal, "I wish to enter port," the shore station hoisted a signal which meant "Stop immediately!" and after our signal, "Please send a pilot," they came back with "Pilot will be sent," and, later, "Proceed as ordered." The chief characteristic that I observed in the Soviet officials was officiousness. The pilot was pulled out about a mile and a half in a little shore boat. It was a cold day and our cook was ready with sandwiches and hot coffee for the pulling crew. They were highly pleased and shoved off promptly after putting the pilot aboard. This was the "sea pilot" who was to take us over the mine field and up to the harbor entrance. He was a tough looking customer who completely fulfilled my forecast of what a bolshevik ought to look like. He accepted our food, coffee and cigarettes with an uncivil grunt and my only assurance that he would not run us into a mine was his own presence in the same boat and some sort of comforting belief that perhaps no mines were there after all. Proceeding close and parallel to the shore we arrived off the breakwater of the port where we were joined by the "harbor pilot," an old petty officer of the former navy.

He was courteous and grateful for our favors and proved a great assistance in getting ashore after we had anchored in the port.

With the assistance of the interpreter of the local American Relief Administration, I visited the officials whom I needed to see. First was the "Marine Control." We came to a little two-story house on the water front where my interpreter got from an anteroom a permit for us to go upstairs, past the soldier who stood with fixed bayonet at the foot of the stairs. Arrived in the rooms above we were admitted, after a brief wait, to an inner office where I was received by the Chief of the Marine Control. He was a man of about forty, pale, with three or four days' growth of scraggly beard and with close cropped scalp. He wore an ill-fitting, olive-drab uniform faced in green. He did not rise when he spoke to me. Beyond that fact he was not discourteous. He had a tremendous automatic pistol on his desk in front of him. My business with this gentleman was to arrange permission for my men to get ashore and to get written passes for the officers. The enlisted men were not required to have individual passes to land but the Marine Control insisted that the sentry at the landing should have a list of the names of the men in the liberty party so that he could check them as they went ashore and as they returned to the ship. The requirement of passes for the officers was just a local form of graft, each pass costing one dollar or one Turkish pound.

The Chief of the Marine Control was the type that I had supposed all bolsheviks to be. I was pleasantly surprised in my next visit to Mr. Kosura, known to us as the Secretary of Foreign Affairs. His English-speaking aide, Margolis, met me at the front door and escorted me to Kosura's richly furnished office. The woodwork and furniture was elaborately carved. His wide, luxurious desk was a work of art. As he sat there in his heavily cushioned chair with his feet resting on an expensive rug, I made a mental note that there was no "comrade stuff" in that office. Mr. Kosura was a gentle type of man with good manners, a pleasant voice and a personality that would have done credit to any diplomat. He welcomed the *Goff* to Odessa and expressed a hope that the United States would soon be in a position to recognize his government. He had followed for several years the reports of Admiral Bristol; he was convinced that the admiral was

a great American and a great statesman and wished that he might have an opportunity to meet the admiral. Mr. Kosura would be delighted to do anything he could to make our stay in Odessa pleasant.

During the stays of our ships in Odessa our sailors were frequently invited to attend meetings of the Soviet Sailors' Club where they listened to speeches made in English for their benefit, and were approached with various forms of overture looking toward their education along the line of the proletariat's rights. The men would tell me all about these meetings. The American bluejacket offers an unfertile field for the seeds of bolshevik propaganda. He is convinced that, if there is a "lower class" in America, he does not belong to it and his mental attitude toward the bolshevik and his doctrine is best summed up in the expression, "Where do you get that stuff?"

Odessa is the most important seaport of Russia. The big, lovely harbor was empty except for two small coastal steamers. The business of the whole city was dead. Most of the shops were closed and those that were open contained stocks made up principally of second-hand clothing and finery of better days. It was bitterly cold and I was surprised that there were no beggars in sight and that practically everyone was warmly clothed. The exchange at the time was 20,000,000 rubles to the dollar. The money changers gave a higher rate for treasury notes "with Washington on them" than for national bank notes.

Our job at Odessa was to take official mail to the Americans there and to render to them such other assistance as we could. The use of our radio was denied us by the Soviet authorities while in their ports. Formerly on arrival of our destroyers officials would come aboard and announce they had come to seal the radio room, but, having been in each case politely but firmly informed that they would do nothing of the sort, they had abandoned this procedure. We did, however, in order to remain on easy terms, carry out their rules and abstain from sending any radio messages while in the port.

The formality of getting out of Odessa was as rigid as that of getting in. Again we must have the harbor pilot on the bridge while the captain took his ship out beyond the breakwater, and the sea pilot, who was at least theoretically valuable in that he

U. S. Navy, Official Photo

THE INFLUENCE OF AMERICAN JAZZ
A refugee forgetting his troubles

took us through the mined area. We must go through the process of getting permission to leave the port. At the appointed time we were ready to get under way. The navigator had gone to the Marine Control to get the two pilots. He was delayed over an hour and the explanation was that the Marine Control had not been informed that we had permission to leave port and had to telephone the Secretary of Foreign Affairs before he "could permit us to leave." Of course the first impulse of an American naval officer, conversant with the customs of the world and with the rights of naval vessels on friendly visits to come and go at will, is to rebel at these petty delays and rulings and to disregard them, but here was an extraordinary situation which demanded of our destroyer skippers, unusual patience and forbearance. Our mission was not only to go there and accomplish what we had been sent there to do, but so to conduct ourselves that another of our ships would meet with no opposition in visiting the port on a subsequent occasion. This required extraordinary care and tact; to safeguard thoroughly the rights and dignity of our own position and at the same time to make ourselves, by unofficial intercourse, agreeable to the officials of a government not recognized by the United States.

After steaming out across the mine field we again came within sight of the signal and pilot station at San Jeiki. The shore boat came out for the pilot and I was astonished to see that the crew, whom we had fed a few days before, had, in repainting their boat, put our number, a big 247, on its bow. This delicate compliment naturally called for double rations. What a graft they would have if they always knew the number of the American destroyer which was coming next. No charge was made for the services of these pilots and all of them managed some sort of existence on the most meager of salaries. We always gave them some supplies like a pound or so of sugar or coffee. A pound of tea was more than a month's salary to these men.

Our next port was Theodosia, in the northeastern part of the Crimea, just south of the Sea of Azof. This trip took us along the Crimean coast near Yalta, the great summer resort of the good old days and site of the wonderful summer palaces of the Romanoffs. Theodosia is a nice little port in a partially land-

locked bay with well constructed seawalls within which is ample space for six or eight large steamers. The officials at Odessa had promised to telegraph to Theodosia that we were coming but they had failed to do so and we were not expected. As soon as we could see the signal station on the breakwater we made out two flaghoists flying. One, when translated, meant "Anchor instantly!" and the other "You are ordered not to enter port!" This all looked very peremptory but I had heard of the ways of these people from officers who had been there before and we kept on going at fifteen knots to our chosen anchorage just outside the harbor entrance. Within a few minutes, out came a motor launch with six or eight officials.

We were prepared in the wardroom and asked them all to come down below. Their attitude was not pleasant when they came aboard. "You saw our signal, why did you not stop?" one demanded in English. "I could not read it at such a distance and I wanted to come close enough to talk to you. Please have some tea," I replied.

My visiting committee was full of business. Seated at the wardroom table, one broke out a dirty little note book and the one who spoke English took charge. "What was the name of the ship, and of the captain, and how many men did we have and where had we come from, and what for, how long did we want to stay and when was the United States going to recognize the Soviet government of Russia?" By this time, however, the tea and coffee were beginning to have their effect. Some toast with cinnamon made a big hit, and the jam—how that did fly! The notebook and pencil and unpleasantness gradually faded away as hot coffee with lots of sugar and thick canned cream began to make its way into our callers. The man who spoke English whispered in my ear that we must come into the inner port, "More hospitable, you know," and then some words to the effect that he would, above all things, like a can of sardines. No wet feast of the old days ever had more convivial results than did this little tea party. Those who had come to "shoo" us away remained to welcome us to their port. The chief of the party communicated to us that he was desolated to learn that we would sail that same day because he wanted us to come and have tea at his house. We had a few

hours at Theodosia. The men went ashore and found it rather dry picking as a liberty port. The American representative of the A. R. A. being absent, I conducted my business with the Russian clerk.

The so-called Secretary of Foreign Affairs was out when I went to see him but I had a talk with his assistant, a Mr. Gunn, who spoke good English and looked like a German Jew. He told me among other things, "We treat your people well here. We only wish that you would treat our people who visit America as well as we treat you. Of course, I know that in America they think we Russians are only making dangerous Soviet propaganda, but what we really want is commerce and we look to America for capital." I told him that America was merely watching Russia, that whatever might come in the future in the form of recognition of the Russian Government would naturally depend upon America's knowledge of conditions in Russia.

A long, straight leg, 300 miles south by east, brought us to the Turkish port of Trebizond in the southeast corner of the Black Sea. From now on until we got out of the Black Sea we must take our chances with the weather because we would see no sheltered ports in Turkey-in-Asia. Trebizond has no harbor except about two acres of shallow water behind a partially sheltering breakwater, in which boats and very small steamers can take refuge from the frequent northwesterly winds. The indentation of the shore, which in courtesy I will call the port, is crescent shaped and open to the north, east and west. The anchorage was about 1,200 yards from shore opposite the center of the crescent. The boat landing is under a cliff at the western end of the crescent. Ten miles to the westward is Cape Ieros, a striking promontory pointing out to the northward. This cape is useful as a weather indicator. The *Sailing Directions* informs the mariner that when low hanging clouds cover the peak of Cape Ieros he may look for wind. My experience in that vicinity taught me great respect for Ieros.

Trebizond is the capital of the *vilayet,* or province, of the same name and has been part of the Turkish Empire since 1461 when it was captured by Mahommed II. From the first part of the thirteenth century until taken by the Turks it was an independent empire, principally Greek. During the days of the Em-

pire the court was renowned for its brilliance and pomp, and the women of the imperial family, famed for their beauty, were sought in marriage by the royal princes of all the neighboring kingdoms. The commercial importance of the port was great. It was the shipping point for the goods brought by caravans from central Asia and Persia across the table lands of Armenia by way of Erzeroum. Protected by a barrier of mountains from the rest of Asia Minor and blessed with a temperate climate, this port continued to increase in prosperity until the railway was built connecting Baku and Tiflis with the Georgian port of Batum. The railroad threw most of the Asiatic business into Batum, but Trebizond continued to do a flourishing business in the export of hides, nuts and Persian rugs. About once in three days a caravan of twenty to thirty camels would arrive after a three weeks' voyage from Persia. Turkish, Italian and French steamers stop there for freight and passengers.

The destroyer *Kane* was at anchor at Trebizond when we arrived. The captain took me ashore to introduce me. The captain of the port was the first person we visited. He was an officer of of the Turkish Navy, kindly and pleasant. We then called on the *Vali* of Trebizond. His position corresponded with that of a prefect in France or Italy, and was comparable with that of governor of one of our states. Hazim Bey, the *Vali,* is well known in Turkey as a writer of poetry in both Turkish and French and he has a reputation all over the Near East as an authority on auction bridge. He served Turkish coffee and we talked for a few minutes in French and then took our leave. The naval commandant was ill when we called. Ali Galib Bey, the colonel commanding the troops, presented a fine soldierly appearance. His uniform and boots were new and smart and there was an air of efficient snap to his entire surroundings. He talked French and told us the latest news from the Lausanne Conference. After leaving the colonel we climbed the hill to the house of the American missionaries. There we met Mrs. Crawford, an old lady who had been twenty-six years in Turkey, and Mr. Stapleton, who had spent fourteen years in Asia Minor. These good people were devoted to a life and a work that seemed to make them happy. They conducted school and religious training for the Greek and Armenian children. Mr. Stapleton was a Congregationalist minis-

ter and held church services in the Armenian tongue every Sunday. They lived well, had a big, fine house and were very hospitable.

The *Kane* took our mail aboard and sailed for Samsun. Within a few days we became acquainted with some of the people of Trebizond. There was Munir Bey, who stuttered and spoke excellent English. He was a graduate of Robert College, a staunch Turk, tempered and improved by education. Nazam Bey, the merchant and proprietor of the local movie theater, had a new gas engine generator which he couldn't make work. Our chief electrician went over and fixed it up in no time. After that the cinema theater was ours for the asking and the proprietor let us have several films for use aboard ship. Then there was Dr. Nihat Bey, a well educated young man who practiced medicine and conducted a private hospital. He had a lovely Russian wife, who, in public, always went heavily veiled as became the wife of a mussulman. Within doors, however, she freed herself of certain of the Mohammedan restrictions and, on their Thursdays "at home," she mingled freely with the guests as she would have done in her native land.

On Thanksgiving Day three of us went ashore to have midday dinner with the missionaries. Our host informed us on arrival that we were going to have a storm. As the indications had been good when we left the ship I disagreed with him. He then told us of a list of fourteen storms which the native *caiquejees,* or boatmen, had observed throughout many years to come on scheduled dates. "They always come," he said, "within one day of the date mentioned on this list." He gave me the list before we left the house. The natives had a name for each of these storms, "The mating of the sheep," "The browning of the nuts," etc. "The falling of the leaves" was on the list as due that very day, November 30, but I was reassured by looking out the window at the harbor below where there was not a ripple. The dinner went forward. Turkey, cranberry sauce, two pies, plum pudding, everything that Massachusetts or Mississippi could require on Thanksgiving Day. I didn't get to the nuts, however, for in the middle of the ice cream I turned and looked through the window at the harbor. Whitecaps showed that the wind was blowing. We left with scant ceremony and hurried to the landing. The seas were breaking over the pier, so we signalled the ship to send a boat

to the inner harbor. A half hour later we were in the whaleboat but by this time a moderate gale was blowing. It took fifty minutes with two officers and six men pulling continuously, to row the short half mile to windward to the ship. Even then our difficulties were not over. With the boat dashing up and down with the waves it was necessary for each man to watch his opportunity to jump for the sea ladder and get over the side quickly enough to avoid being crushed against the ship by the boat. Finally we were all aboard and the boat was trailed astern with a long line. The leaves were, indeed, falling and I made up my mind then that if the sheep should mate or the nuts should brown while we were in the Black Sea those processes should find all hands aboard and all boats hoisted in. We had no occasion to check up on the whole list of fourteen storms, but the second one, due on December 5, came right on time.

Trebizond was the first real Turkish city I had seen. The town people and merchants were dressed in conventional modern garments, but the country people or villagers were mostly in peasant costume. The men wore the Larz dress, the head wrapped in a long, narrow cloth so wound as to give a rabbit ear projection on each side with the unexpended ends hanging down about a foot in the back. There would be a brilliantly flowered calico shirt covered with a tight, waist-length jacket, open in front. The trousers were tight and form-fitting from the ankles to the hips with tremendously baggy seats. From the calf down the legs were covered with bright colored knit stockings which disappeared into the conventional Turkish shoe, upcurved at the tip and flat at the heel to facilitate slipping it off and on at the door of the mosque. The town women moved freely in the streets but, except for the Greeks, Armenians and the few Europeans, all went heavily veiled. Their costume was almost uniform; black or dark brown dress, burnous of the same material, and a thick, black screen over the entire face.

The peasant women were, without exception, in rags. While in town they generally appeared to be waiting; never on the move except at arrival or departure. Huddled together, cringing in their rags, invariably with one hand drawing the shawl more protectingly over the face, these groups seemed to be in terror of everything that passed. The peasant women throughout Asia Minor

are unique of their sex in a complete repudiation of the ancient female tradition of self adornment. Throughout the ages woman is said to have devoted a large part of her time and thought and cunning to the purpose of decorating and beautifying her person to the full limit of her means. I had come to believe that this was an instinct inseparable from the sex, but these country women of Asia Minor, in public, always appear in their same rags, in their same slovenly disregard of the first principles of style and coquetry. Not by a single bead nor by one stroke of bright, fresh color do they betray the slightest interest in their appearance.

Another interesting sight here was the caravan that arrived about twice a week from Persia. Twenty or thirty camels would come in single file over the road from Erzeroum, all laden with boxes and bales except the leader, a dignified old fellow who carried nothing but a collar of many-toned bells. These staid animals would stroll in bored fashion to the custom house where, at the proper signal, they would crumple their front legs, then their rear, and with a lurching, pitching motion go down in a squat to have their burdens removed. After the *hamals,* or porters, had relieved the camels of their loads, these ships of the desert would be parked on a sandy beach nearby and the Persian camel men would go on liberty in the town. They were easily distinguishable from the natives by their reddish bronze complexion and their long rudely woven cloaks of natural colored wool.

This town, being under the complete control of the nationalist government, was thoroughly dry. The favorite tipple of the Turk is a white paregoric-tasting distillation of grape called *raki* or *douziko,* which turns milky when water is added. In Trebizond and in other Turkish towns outside of Constantinople I never saw this or any other liquor for sale. It was simply not on the market. Those who wanted it had it in their homes but I don't know how they got it. I always thought is could easily be made by cautiously combining alcohol, water and paregoric. The stuff was very cheap and perhaps the small profit in its sale had something to do with the simplicity of prohibition enforcement in Turkey.

The mayor of Trebizond was courteous and we became good friends. I called and asked him to set his own time for the return visit. He said he would come at one, so we hurried through lunch and received "His Honor" at the tea table shortly afterward.

A fancy cake with some red icing arranged in the form of the Turkish flag made a hit. The mayor was so pleased that he said he would ask his wife to make us one of her cakes and he also asked me and some other officers to come and have tea with him two days later. The mayor's cake arrived just before lunch on the second day. It was three and a half feet in diameter, a syrup-soaked baking of highly shortened pastry. It was beautifully done, though the mutton fat used for cooking has an odor somewhat distasteful to the Occidental. We ate a considerable quantity of the mayor's wife's cake and about two hours later went ashore to attend the mayor's tea. If we had expected, perhaps, to get a glimpse of his harem we were doomed to disappointment, for we were taken in carriages to the mayor's office which we found done up specially for the occasion with lots of rugs and fancy tableware. The town council was there. They were the mussulman counterpart of one of our own small city councils. There was only one interpreter for the whole party, so most of the talking was done by the mayor and myself. The first course was a cake similar to the one we had just eaten on board ship. I told the mayor that I liked it very much, so we had some more. Then we talked for a time about the possibility of a railway between Trebizond and Erzeroum, and I was beginning to think it was time to go when in came another kind of cake. This was a beauty, chocolate colored, decorated with hundreds of bright little silver balls like BB shot. Beginning to feel rather caked up, I ate and praised this pastry and the mayor promised to send me one like it.

As the great need of the port was better transportation facilities with the hinterland, I told them something of the development of the motor truck as a carrier in our country, even in those sections where railways were thickest, and was about to suggest that it would be much less costly to have a highway to Erzeroum than to build a railway, when they brought on another cake, the *ne plus ultra!* This was white and coffee colored with a candy American flag standing in the center. I would have refused except for the flag, but I could not revoke in the presence of that emblem. I looked at my shipmates and saw that they were with me, sink or swim. I remember feeling a sort of delight that the gunnery officer, who had the chief appetite of our mess, was about to be done in at last. He was beginning to show a glassy stare but I knew

that he and the first mate would do their duty, and with a mighty effort I displayed a smile and turned to on the star spangled cake. The next day while getting up the anchor to leave port a boat came out with a note from the mayor, a bunch of flowers and two cakes! Long live Haki Bey, cake eating mayor of Trebizond!

While we had been at Trebizond the Turkish National Assembly at Angora had made certain regulations regarding the visits of foreign men-of-war to their ports. These regulations had been communicated to the foreign senior officers in Turkish waters and our staff at Constantinople had just transmitted them to me. The rules were simple and reasonable and would not be difficult to observe. A day or so after their issue by the Turks and before their receipt by all of our ships, our relief was due to arrive. Late one afternoon I got a despatch from the destroyer *King* that she would arrive at midnight to relieve us. As the Turks had made a regulation that, on account of threatened hostilities with Greece, no war ships should approach their ports at night, I sent an officer to inform the captain of the port that the *King* was to arrive that night unless I could get her by radio and explain the recent ruling to her. The port captain answered that he would be obliged if I could communicate with the other destroyer and ask her not to arrive until 7 A. M., but if I could not reach her and she should come in during the night, I would please effect an introduction by turning our searchlight on the arriving ship and then shift the searchlight back and forth alternately on the ship and the fort so that the latter would understand and not open fire. This procedure was not necessary, however, because when I explained by radio to the captain of the *King* about the recent ruling he readily agreed to remain out of sight and arrive at 7:00 the next morning.

When our relief arrived we were ready to move on to the next port. I spent two or three hours introducing the commanding officer, Lieutenant Commander Fuller, to the officials and to the Americans ashore. Then, after getting the *King's* mail, we got under way and headed west for Samsun. At Samsun we found another open roadstead where at that time of year constant vigilance was necessary on account of the sudden winds. This harbor was completely exposed from northwest around to east. There was no sheltered landing place here as there was behind the little

breakwater at Trebizond. When the wind blows from any direction but the south, the only way to get ashore is to land through the surf. Practically the same calls were to be made as at the previous port. The senior civil official was called the *mutesarrif*, one grade lower in the civil scale than *vali*. There was a goodly colony of Americans at Samsun; three or four soft speaking Carolinians, engaged in buying Samsun and Bafra tobacco for blending in American cigarettes, and six members of the organization of the Near East Relief, engaged in work among the Greek and Armenian refugees. It was a pleasure to meet these nice Americans and, after a month in the Black Sea, it was specially agreeable to find some young women from home. We visited them ashore frequently and were pleased to have the colony come aboard ship and share our limited facilities for entertaining.

An American abroad is always glad to find one of his naval ships. The calmest man experiences a deep thrill as he comes into an out-of-the-way port and finds the stars and stripes flying on a man-of-war. As a matter of policy and for our own pleasure one or more of us would always board incoming passenger ships to see if there were any Americans aboard and, if weather and the sailing hour permitted, to invite them all to come aboard the destroyer. Tourist or diplomat, laborer or millionaire, they all accepted, and the invariable remark, as they came over the side and saluted the flag, was, "Isn't it great to be on American soil again?" There is a certain American citizen who has not yet seen the shores of the United States but who has seen America. She is a Russian woman who married an American business man in the Caucasus in 1922. After seeing all her own family and fortune wiped out by the Bolsheviks and after suffering innumerable hardships and degradations extending right up to her departure from Batum, where she had been forcedly given a humiliating personal examination by customs officials, she, with her husband, finally got to Trebizond while we were there. I brought them aboard the destroyer for a visit. I have seen her often since and, in her quaint English, she has always sworn tremendous devotion to the *Goff*, an American outpost, her first tangible evidence of the power which was henceforth to protect her.

At Samsun some of the officers and men went shooting. It was easy to find natives who were enthusiasts and there were several

good setters. One would see boys in the streets with live partridges for sale. They had a way of putting up a net at night with a lamp behind it and the birds would fly toward the light and wind up in the net. I am on uncertain ground here and, lest someone challenge me as a nature faker, I pass the buck for this story to Abdullah, our peerless ship chandler and general handy man at Samsun. I do know, however, that several nights we found partridges on the decks and one morning the cook found a large crane, dead, on the forecastle. He had rushed for the ship and had broken his neck as he struck.

In December, 1922, 30,000 Greeks and Armenians at Samsun were awaiting transportation to Greece. These people and their ancestors had always lived in Asia Minor but on account of their religion had never merged with the Turks. There had always been trouble between these different races in the same land and during the last few years it had become apparent to both sides that the only way to solve the problem was to evacuate the non-moslems. The Turks insisted that they were not driving these Christains from Asia Minor and repeatedly announced that they might remain unhindered if they cared to do so. Considering all things these non-moslems found it more expedient to break from the soil they had tilled and the shops they had kept and become refugees to unknown shores than to remain under the uncertain future of Turkish rule.

The Near East Relief was doing splendid work in the care of these people. They quartered and fed those refugees who were well and braved the peril of disease in hospitals with those who were ill. I went through the hospital with the nurse, who showed me smallpox, typhus, erysipelas and leprosy, all receiving the best of care.

The *Gabriella,* a small steamer chartered by the Greek Government, came to Samsun to get a load of refugees. Crutcher, of the Near East Relief, had his arrangements systematized and ready in advance. Each person was tagged with a card consisting of a main stub and several coupons to be clipped in the process of embarking. One coupon went to the health inspector as a voucher that the passenger had been deloused, another to the boatman, a third to be collected at the gangway of the steamer and the stub to be retained by the passenger as a label of identification

aboard ship. Navy men were called into service to assist in the embarkation—to prevent the helpless ones from falling overboard and to speed up the balky who were inclined to settle in the gangway. Sufficient water, bread and olives had been provided to subsist the passengers until disembarkation at Salonica. All day long, from daylight till ten at night, the stream was kept going until the captain said he couldn't get another one aboard with a shoe horn. The *Gabriella* sailed late that night with 4,500 passengers.

It was about this time that we learned by the radio press of the glorious act of our sister ship, the *Bainbridge,* in rescuing at great risk to herself, nearly 500 men, women and children from the burning and exploding French hospital ship, *Vinh Long.* Our first thoughts were, perhaps, of envy, that we had not had such "luck," but our lasting feeling was that we would rather it were the *Bainbridge* than anyone else. Always we had been together, these two ships. Built together, numbered respectively 246 and 247, we had worked together and played together, and we of the *Goff* were delighted that our chummy ship and "buoy mate" should have had such an opportunity. We gloried with them in the splendid work of their able captain and efficient crew in doing this job with a daring and thoroughness that attracted admiring attention in all parts of the world.

On December 17 the *King* arrived from Trebizond and in accordance with the system we moved on to the westward, stopped at Selvi Bournu for fuel, and arrived at Constantinople a few days before Christmas.

(to be concluded)

THE SUPPLY SHIP

By Lieutenant R. G. Lang, U. S. N. R. F.

ARTICLES written about the Navy constantly refer to the battle cruiser and battle ships as being the backbone of the Navy. This is, perhaps, not true as, due to the activities of enemy aircraft and submarines, we find their teeth to some extent have been pulled. But still they remain and must form our first line of defense.

They have a speed of approximately 21 knots and a steaming radius sufficient to take them to strategic points. When we take into consideration the distance this might be from a naval supply base, such as a point in the Southern Hemisphere, we realize that these vessels cannot exist without the various auxiliary units and supply ships composing the train upon which they depend.

These supply ships must, in turn, have sufficient speed to cruise with the fighting units and make their escape in case of attack.

The train is composed of repair ships, ammunition carriers, hospital ships, fuel carriers and food supply ships, and should have sufficient capacity to supply a fleet and its auxiliaries with the food, supplies, and necessary repairs without which the fleet cannot exist.

The fleet, therefore, relies on these supply ships which are its backbone.

How much work can a human being do on an empty stomach? How can a man be called upon to face hardships if not well fed?

No doubt, during the late war many readers of this article stood watches of four hours on, and four hours off for periods of twenty odd days at a time, and, if they had not been well fed, the strongest would have broken down.

The army in France needed feeding and we did not have a thoroughly equipped supply ship in the whole of the army transport service or the Navy, with the result that ships especially

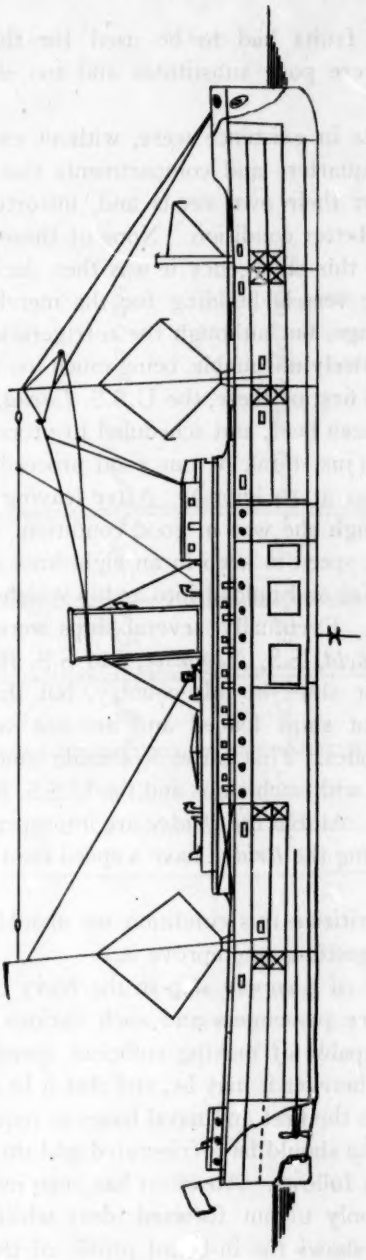


FIG. 1
PROPOSED SUPPLY SHIP
Longitudinal Section

constructed to carry fruits had to be used for this purpose; these at their best were poor substitutes and too slow for the service required.

The army transports in existence were, without exception, old ships so cut up into quarters and compartments that they could only carry enough for their own needs and, unfortunately, our Navy was not in any better condition. None of these ships could average 12 knots. In this emergency it was then decided to convert a number of the vessels building for the merchant service into refrigerator tonnage, but although the refrigeration was perfect, the ships were entirely unsuitable, being much too slow for the purpose in view. The first of these, the U.S.S. *Luella,* was loaded with 2,000 tons of frozen beef, and scheduled to proceed overseas in a 10-knot convoy, (just think of our food proceeding through submarine-infested seas at 10 knots). After leaving her pier, it was found that, although she was in good condition, she was unable to make sufficient speed to keep in an eight-knot convoy, and had to return to her pier and unload into a ship which could make the required 10 knots. Eventually, several ships were converted: namely the S.S. *Deerfield,* S.S. *Neponset,* and S.S. *Wheaton,* the three best refrigerator ships in this country, but they are only approximately 11 knot ships loaded and are not suitably subdivided for naval supplies. This is the deplorable condition which still exists even today, with such ships and the U.S.S. *Bridge* being the best the Navy has. All but the *Bridge* are improperly fitted for supplies and all including the *Bridge* have a speed limit of 12 knots or less.

If we venture to criticize this condition we should be able to offer constructive suggestions to improve it.

In general, the duty of a supply ship in the Navy requires that it be arranged to carry passengers and such various supplies as required, that it be capable of making sufficient speed to keep in touch with the fleet, wherever it may be, and that it be of sufficient capacity to supply both the fleet and naval bases as required.

Our ideal supply ship should be refrigerated and the description of such a suitable ship follows. An effort has been made to avoid intricate details and only to put forward ideas which may later bear fruit. Figure 1 shows the in-board profile of the suggested type, which should be rigged so that both sides can be used for unloading simultaneously.

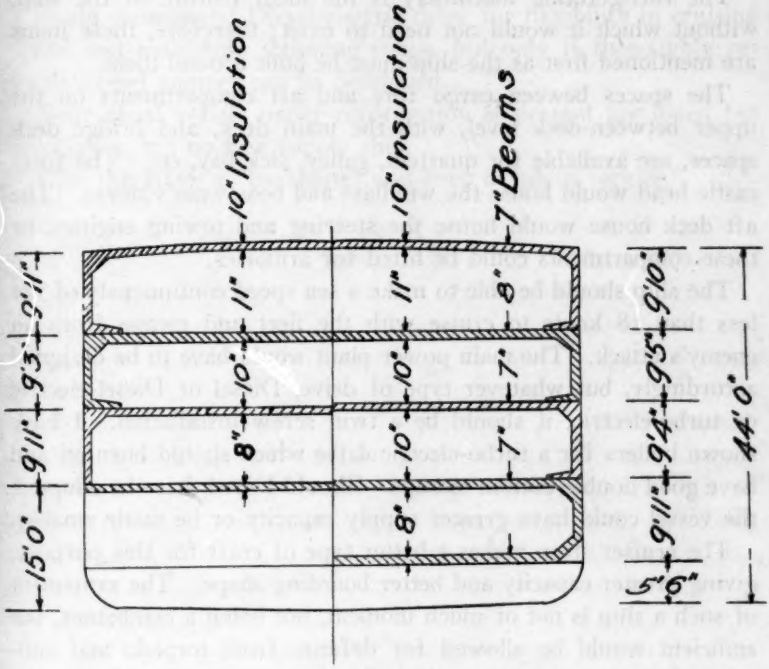


FIG. 2

PROPOSED SUPPLY SHIP

Transverse section

The eighteen compartments shown are entirely independent of each other, completely insulated and refrigerated (no air spaces) with a refrigerating system which will make them available for any type of cargo—frozen, chilled or dry. The refrigerating machinery room should be located as shown to give good machinery ventilation and central refrigerating distribution without taking up space more suitable for cargo.

The refrigerating machinery is the main feature of the ship, without which it would not need to exist; therefore, these items are mentioned first as the ship must be built around them.

The spaces beween cargo fore and aft compartments on the upper between-deck level, with the main deck, and bridge deck spaces, are available for quarters, galley, sick bay, etc. The forecastle head would house the windlass and boatswain's stores. The aft deck house would house the steering and towing engines, or these compartments could be fitted for armories.

The ship should be able to make a sea speed continuously of not less than 18 knots to cruise with the fleet and escape from an enemy's attack. The main power plant would have to be designed accordingly, but whatever type of drive, Diesel or Diesel-electric or turbo-electric, it should be a twin screw installation. I have shown boilers for a turbo-electric drive which should burn oil and have good double-bottom storage. Should Diesel drive be adopted, the vessel could have greater supply capacity or be made smaller.

The cruiser stern makes a better type of craft for this purpose, giving greater capacity and better boarding shape. The armament of such a ship is not of much moment, not being a combatant, but sufficient would be allowed for defense from torpedo and submarine attack. Anti-aircraft and saluting guns should also be carried. These, with the main battery being possibly 4-inch to 5-inch guns, would be ample to keep the personnel fit in gun drills and gun handling for other types of ships of the Navy. Figure 2 shows in sections the fore and aft ends and deck heights with the insulation shown in place.

It will be noticed that, contrary to naval practice, there is no air space between the ship's shell plating and the insulation. The ship's side can be well protected before insulating to offset any corrosive action and it will insure a perfectly dry insulation which is not possible with other types of construction.

In drawing up these remarks I have tried to visualize a particular type of supply ship and to put sufficient ideas on paper to justify my recommendations as a cure for the disadvantage under which our Navy is now staggering, and would again emphasize my ideas that the vessel be properly insulated and refrigerated, adequately subdivided for the various commodities to be carried and have a sea speed of well over 18 knots with a long cruising radius. I would recommend Diesel-electric drive for flexibility in cruising speed and maximum steaming range, but only if thoroughly reliable Diesel engines can be developed.

Four naval vessels under construction at present are listed for auxiliaries, but no new supply ship.

Give the Navy a "backbone" and keep a "silent service."

BASIC EDUCATION OF OFFICERS

IS THE PRESENT SYSTEM OF TRAINING AND EDUCATION OF OFFICERS SATISFACTORY AND SUFFICIENT?

By Ensign Winston Folk, U. S. Navy

THE title of this article is a question and to give answer to it, "Is the present system of training and education for officers satisfactory and efficient?" I say, "No!" I am not saying that it is not a good system. It is splendid, but it is not perfect, and I believe there are faults in it that should be and which can be remedied. In the first place, the course at the Naval Academy is too narrow, though with all that it is necessary to cover, it could hardly be otherwise in a four-year course. Let me call to your minds some of the words which are on every fitness report, quoting from a letter of John Paul Jones to the Naval Committee of Congress in 1775. "It is by no means enough that an officer of the Navy should be a capable mariner." (May I add "sea fighter and leader of men"?) He must be that, of course, but also a great deal more. He should, as well, be a gentleman of *liberal* education. . . . "both with tongue and pen he should be versed in French *and* Spanish. . . ."

Is the Naval Academy graduate liberally educated? No, he is not. Is he well versed with both tongue and pen in *either* French or Spanish? No, he is not. Some there may be who, because of special boarding school training, or a year or two at college previous to their entrance to the Academy, have what might be termed a liberal education, and some who have had French or Spanish before entering the Academy are more or less versed in one or the other; but the man who has had an ordinary high or boarding school education and who has never had French or Spanish previous to entering upon his midshipman career is not well versed in French or Spanish and has not a liberal education or anything approaching it.

It might be well, perhaps, if at this point I set forth my idea as to what constitutes a "liberal education." To have a liberal edu-

cation, one should have a large acquaintance with the classics, the works of great writers that have stood the test of time; should be able to speak fluently and write in at least one foreign language; should have a thorough and wide knowledge of history, ancient and modern, political and religious; should be well read in the best of current literature and should be well informed about the important every-day happenings; should know and understand the political situations in and the general foreign policies of the large nations of the earth; in short, should be a man whose reading and study have been wide and varied and whose knowledge and information are, therefore, broad and extensive.

I fully realize that the amount of professional knowledge necessary in the naval profession has vastly increased since the days of John Paul Jones, but it has increased in other navies as well as in ours. Are not British, French, Italian and even Japanese naval officers much more liberally educated than American naval officers? Should American naval officers, who represent the elite of their country around the world, be weighed in the balance against foreign naval officers in the matter of culture and be found wanting? No, of course not, and all will agree with me there, but how many would agree with me when I say that they are found wanting? Not so many, no doubt. But from what I have read of the training given to future naval officers in the countries mentioned, from what I have been told by others who have known the naval officers of those countries, and from my own observations as regards British officers, it seems to me that the American officer falls behind the others in information outside of the naval profession—a general knowledge of the arts and sciences and history; in the matter of being well read in classical, nearly-modern, and modern literature; in respect to ability in foreign languages and in the knowledge of the political systems and foreign policies of other countries. (An American officer after a short talk with an English officer was heard to remark, "That 'bird' knows more about my country than I do!") Then, even if you think that the American naval officer can "stack up" against the officers of the rest of the world in the particular point under discusion, are *you* satisfied with your own self in respect to your liberal education, your cultural abilities? If you are, and if there are many like you, then may God pity the American Navy, for when satisfaction comes in at the door, ambition flies out through the window, taking

progress and achievement with it; and if you are not satisfied, and most of you will fall into this class, you are probably trying to better yourself all the time, but find the necessary amount of time lacking. But would you not be much farther on your way toward satisfaction, had your pre-officer and pre-midshipman training been broader and more extensive than it was?

Another thing—has it ever occurred to any of you that there are too many resignations going in, especially from the younger officers? And for every one who actually resigns there are many who are considering such a step, and many more who would consider it if they could "see their way clear on the outside." Unrest impairs efficiency and as long as an officer carries the idea that "if ever I have a good opportunity, I'll get out," it will be impossible for that officer to give his best to the Navy. To my mind, such a condition indicates but one thing—that somewhere along the way in the training of officers there has been *failure* in the matter of instilling in their hearts a true love of the service.

Now, having damned, let me bring forth my panacea (every crank thinks he possesses one, you know). I suggest the establishment of at least three junior or preparatory naval academies, the schools to be conducted in general along the following lines: entrance age from thirteen to fifteen years; title of students to be naval cadets; five (yes, five!) academic years of eight months each; a one-month summer cruise on sailing ships, three months leave after the cruise, and two weeks leave at Christmas time; board, lodging, uniforms, and tuition to be given by the government to each cadet, but no pay; admission by appointment similar to the system in use for entrance to the Naval Academy; upon graduation from the junior naval academy, the naval cadet to be appointed to the Naval Academy at Annapolis with the rank of midshipman. That, more or less in outline, is my idea. The academic course should contain the following: English, Latin, Greek, French, Spanish, history, arithmetic (advanced), algebra, plane and solid geometry, chemistry and physics. Also it should contain numerous lectures and talks on all kinds of subjects, but especially those which pertain to the naval service; there should be drills during the year in infantry, artillery, seamanship, etc.; the month on board sailing ships should be spent principally in practical seamanship, signal drills, and some book work—the *Bluejackets' Manual* and *Knight's Seamanship* for example. The

idea of a cruise on sailing vessels was got from a seamanship instructor at the Naval Academy during my first-class year. He had made one midshipman cruise on a sailing ship, and two on steam vessels, and he said he thought that the men of every class should make their first cruise on "canvas spreaders" because in no other way could they be trained as well in the matter of prompt and unhesitating obedience to orders, and to me his arguments were quite convincing.

This is an extremely radical suggestion that I have made. It will cost money and it would be several years from the time it was put into effect before it would be functioning properly—the first ex-naval cadet plebes entering the Academy would probably be very unpopular with the three upper classes and would have hard sledding for a time—but the system, if rightly put into effect would achieve the following:

Give a little more time to plebe-year mathematics by giving solid geometry at the junior school; give a whole extra year to the Department of Electrical Engineering and Physics by taking care of chemistry and physics at the junior school; also, and I do not believe that there is any other department that needs the time as much, give added time to the Department of Seamanship by giving on sailing cruises much that is now studied in that department in *The Boat Book* and *Knight's Seamanship* (this added time might well be used in strengthening the course in leadership); an extra period a week would be gained, for, with the previous training in French and Spanish, one period a week at the Naval Academy would be sufficient for both of them, provided it was spent in speaking entirely in French and Spanish and that some outside reading in those languages was required.

Those advantages would help a little bit, anyway, to give more time to the Academy course, but the main advantages of the proposed system would be in the pre-Naval Academy training. Such a system would send into the Naval Academy young men from eighteen to twenty years of age, well read, well informed, and with a large knowledge of history, to a much greater extent than at present; also, they would be already acquainted with naval discipline, already well versed in infantry and artillery drills, and rowing, sailing and other seaman-like arts—young men in whom the naval spirit has been thoroughly and *enthusiastically* instilled during the formative, plastic period of their lives. It would mean

very few resignations from midshipmen and fewer still from the officer personnel because the Navy and all that it means would be a *part* of them. (Do you suppose that in the "Old Navy" the thought of resigning ever came to those officers who had entered the service as midshipmen at twelve, ten, and even eight years of age?) It would mean practically no "bilging" from the Academy, for the foundation would be quite sufficient for the senior institution to build upon—with such a foundation, what a splendid structure could be reared by that architect of men, our granite-gray Mother by the Severn side! It would mean that there would be sent out into the fleet officers with the technical knowledge of their profession that graduates now have, but in addition these *nine*-year trained officers would have real ability in French and Spanish, a greater knowledge of history, a greater classical knowledge, a larger vocabulary, a wider acquaintance with literature—English, French, Spanish, Latin and Greek—and, in short, would possess that broad culture that would enable them to represent America to the maximum advantage all over the world. Don't misunderstand me. If it came to a choice between a "grizzled old sea-dog," to use that trite expression, who was a capable mariner, an able sea-fighter, and a leader of men, and yet who butchered the King's English, whose knowledge of foreign languages consisted of "Polly voo fronsey" and "Hey, hombre! Come here, pronto!" and who thought Shakespeare was some sort of a medieval weapon, if it came to a choice, I say, between such an officer and one who was a widely read and cultured gentleman and yet who did not possess the three prime requisites of a naval officer, I would take every time the officer that could navigate and handle a ship, fight, and lead men. But can we not have officers that embody the fine points of both? We have now, yes, but not to the extent that we should have or can have.

Originally, my idea was the suggestion of a plan to better and broaden mentally the future officer personnel, but now that it is in print, unfolded to public view, it seems to me to possess other possibilities as well: namely, the moral and physical improvement of the midshipmen entering the Naval Academy.

A few paragraphs back, I pointed out that the young boys entering the junior school would be filled with thoughts of the Navy and its ideals until those thoughts became a part of them. To enlarge somewhat on that thought, a love of country, a love of the

Navy and a true meaning of "the service" would fill eager, receptive minds that might otherwise be listening to the scoffing, anti-everything, young Bolshevik who prides himself on being the leader of the gang which loafs around the corner drug store. Let me "get personal" again. Did not the Naval Academy develop you into something better than you were when you entered there? Is not your character a little bit finer, your ideals a little bit higher, than they would have been had you gone to college and lived the life of the average college student? I believe that they are, anyway; and they would be even finer and higher if the system had been in effect whereby midshipmen are given the benefit of five years' previous training with the special end in view of making naval officers, the very finest kind of naval officers, out of them.

Physically, midshipmen trained under the proposed system would be more strongly and more systematically developed. Athletics are secondary to academic work, of course, but they play an important part in the life at the Naval Academy, and throughout the entire service, for that matter. Can you visualize with me the sort of teams the Navy would turn out with men entering the Naval Academy with five years' preparatory training, *navy training,* to their credit?

The idea of creating new government schools may seem too radical, too impracticable for carrying out, even if the "powers-that-be" should come to believe in its worth. If so, I can but recommend the adoption of the plan, a six-year course at the Naval Academy, suggested by Lieutenant Commander W. O. Henry in an article in the Naval Institute PROCEEDINGS a year or two ago. That would certainly be a great improvement on the present crowded, crammed, jammed four-year course.

I believe strongly in the value of the pre-Naval Academy *naval* training, however. Under such a system, more than ever will the young man entering the Halls of Bancroft be "morally clean, mentally alert, and physically fit."

In conclusion, to those who laugh at what they term my "absurd ideas," to those who are angry because I have denied that the American naval officer is perfect, to those who think me a "ratey" ensign, to those especially, and to all who read this, I ask that it be borne in mind that whatever the faults of this article and its writer may be, these ideas herein set forth are humbly suggested "for the good of the service."

DISCUSSION

Some Reflections upon Commissioned Personnel Problems

(See page 1771, November, 1924, PROCEEDINGS)

CAPTAIN T. C. HART, U. S. NAVY.—This article has so much sound thought packed into a few pages that many of us miss much because of the high concentration. The subject matter concerning Fitness Reports was largely over my head until circumstances caused thought from another angle. The following remarks are submitted in the hope that they will benefit some other who is in a similar state.

It seems that there are some fundamentals on this general subject of rating which are just beginning to be understood. The Army Efficiency Report conforms to those fundamentals quite closely and well; ours does so only in a confused way and the system given as for a university does not conform.

Those fundamentals call for an *objective* and for a *subjective* rating:—

The *objective rating* comprises those factors which are concrete and tangible, based primarily on fact and, so far as is possible, not on opinion of the reporting official. I say "so far as is possible" because entirely to divorce opinion is not possible, but the reporting officials must ever seek to do so. The criterion is:—

How well did he do his job.

To precede it by a report on "how well he understands his job" does not seem to be entirely necessary. If the job has been well done it is safe to assume that it was understood, and in theory we do not detail a man to a job which he has not theory and experience enough to fill. However, we do depart from that theory so often that the report should state, whenever the job is reported as not entirely satisfactorily filled, any extenuating circumstances in the nature of lack of education or of essential experience.

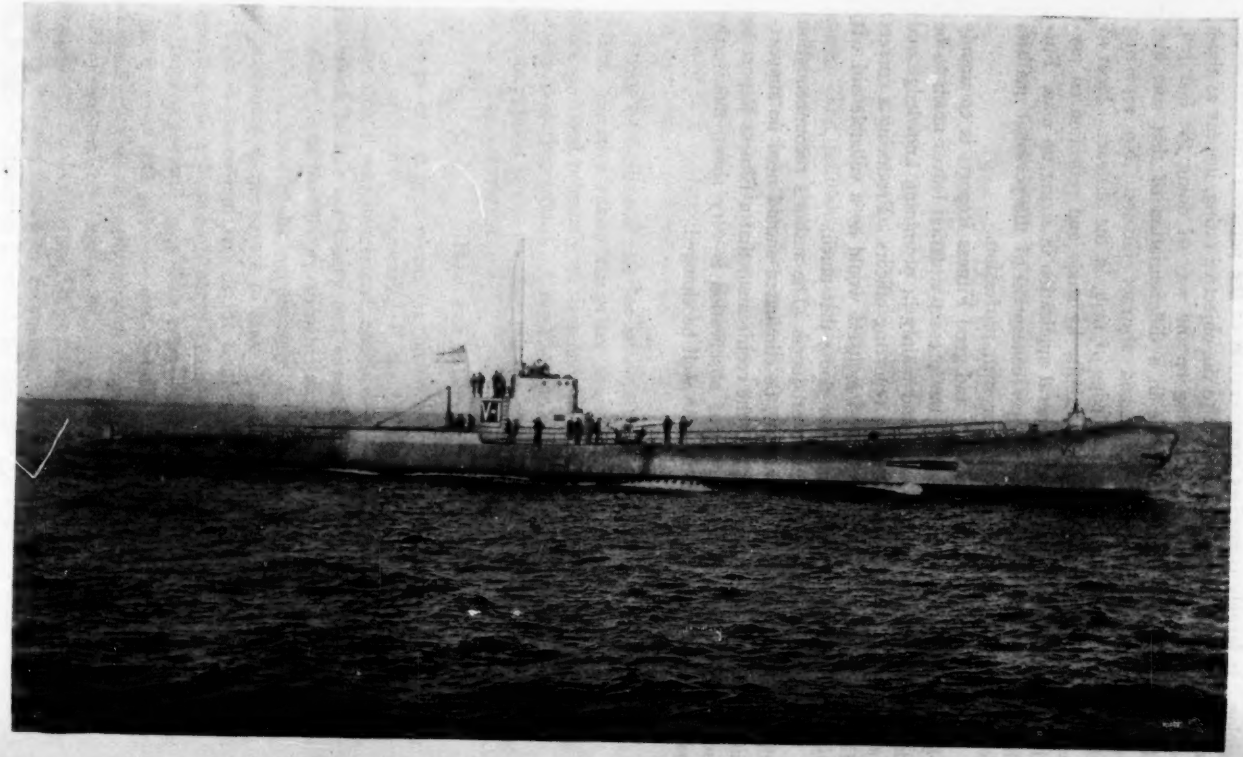
This is the easiest part of the report. Even so, not too easy but if all reporting officers can be brought to understand the distinctive fundamentals, the Department will have data from which to tell who can do the various jobs well—or not so well—and, in time, the Selection Boards can have available very good performance records for all officers.

Now the *subjective rating* is of even more importance, both to Selection Boards and to the Detail Office; the duties of both call for projecting matters into the future by estimating how well the individual is *going* to do, in various capacities in which he may or may not have been tested, and this subjective rating, the most difficult part, *is* a matter of estimate and

opinion. It largely comprises consideration of the personal characteristics. In a way, the subjective throws back to the objective rating, insofar as these personal qualities have had a bearing on the way of doing the last job. However, the difficulty does not lie in a differentiation of that sort but, primarily, in estimating intangible and abstract factors. No reporting officer can do it well without knowledge of man, in the abstract. Most of us can attain a fair degree of such ability by study and reflection on psychology and kindred subjects of general application in sizing up man. Further than that there must be a proper conception of the personal qualities which are basic requirements in our own profession.

The importance of correct rating and good Fitness Reports is commonly realized. Many have the idea that our present situation leaves much to be desired. Improvement is to be found mainly in promoting knowledge and understanding on the subject among reporting officers. Producing a correct form for ratings is much easier and in itself would be a valuable aid. It is suggested that the time is ripe for doing that much.

No doubt a better form will be produced. The author's recommendation that such items as next of kin, etc., be eliminated should need no supporting argument. It is suggested that the requirement that a Fitness Report be submitted, even when the period of observation is very short, manifestly too short for a conclusion, could also well be changed.



U.S.S. Submarine "V-1" Leaving Portsmouth Harbor for Provincetown

U.S.S. SUBMARINE "V-1" LEAVING PORTSMOUTH HARBOR FOR PROVINCETOWN

PROFESSIONAL NOTES

PREPARED BY

LIEUTENANT COMMANDER H. B. HIRD, U. S. NAVY

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GREAT BRITAIN

Relative Naval Strength

Army, Navy and Air Force Gazette, *22* November, 1924.—Nearly three years have elapsed since the signing of the Washington Naval Treaty, and during that time impartial observers cannot fail to have noticed the differences in the manner in which the pact has been received and acted upon in the various countries concerned in it. In Great Britain, the treaty has been accepted with a loyalty to the principle it endeavored to promote which is, indeed, remarkable. It should not be forgotten that this country, which more than any other depends upon sea power, made the greatest material sacrifice in ratifying the treaty. Although in three years between the Armistice and the opening of the conference we had got rid of more ships of war than all the other powers combined, we agreed to scrap twenty-four more capital ships, of which no less than twenty were completed and effective. America agreed to sacrifice twenty-eight such vessels, but only fifteen of them, or about half, were finished ships; of the other half, twelve were not even launched. In Japan, the adoption of the treaty, involving as it did the abandonment of the two fine 16-inch gun battleships *Tosa* and *Kaga,* both of which had been launched in 1921, was by no means popular. Even though the Japanese representatives had insisted upon, and obtained approval for, the retention of the *Mutsu* and *Nagato,* it was felt that the sacrifice of the former two ships was unwise. Since then it has been announced that Japan will keep the *Kaga* for conversion into an aircraft-carrier in place of the *Amagi,* which was wrecked in the earthquake.

When we turn to America, we find that from the moment the treaty was signed a continuous propaganda has been directed against it. It is represented as having robbed the United States of potential sea supremacy, and even as having "crippled" her fleet. The one and only modern ship, completed or completing, which became due for scrapping when the treaty was ratified, the *Washington,* was towed from Philadelphia last week-end,

to be sunk, but not before an action had been brought in the Supreme Court of Columbia against the Secretary of the Navy to show cause why the ship should not be preserved. Internal propaganda is usually no concern of those outside of the country in which it is waged, but in this case there have been too many accusations of bad faith on the part of Great Britain. We are accused of having 711,000 tons of capital ships, or 130,550 tons more than we actually do possess; the *Nelson* and *Rodney* are said to be "nearly completed," although they are not yet in the water and will not be ready until 1926; and the scrapping of the *King George V.* class is called for, although they must be retained, under the treaty, until the *Nelsons* are ready. It must be admitted that the American Government has not gone so far, and the present Naval Secretary has described the criticisms of British action as "impertinent." But such propaganda is not calculated to promote goodwill and better relations between the powers, and its outcome should be closely watched.

United States Critics

Naval and Military Record, 26 November, 1924.—There must be many people in this country, and probably not a few in the United States, who feel that it is rather a pity the advocates of a supreme American Navy cannot manage to urge their case without constant invidious references to Great Britain. William Shearer, a naval "expert" who appears to be suffering under a regular obsession with regard to America's relative position in the assigned ratio of sea power, deliberately accuses the Admiralty of a breach of faith. He says that under the Washington Agreement our capital ship strength was fixed at 525,000 tons, which is quite right. He then states that we are actually maintaining 711,000 tons, which is quite wrong. Mr. Shearer would do well to acquaint himself with facts before seeking to excite public opinion at the expense of British honor. He alleges that we promised to scrap the *King George, Ajax,* and *Thunderer.* So we did—but not until the two capital ships under construction are ready to replace them.

Now comes Senator Hale, chairman of the Senate Naval Committee, with a bill ready to press upon Congress for the immediate laying-down of eight large fast cruisers and the conversion of six earlier battleships to oil-fuel consumption. He is quite frank to his admission that his motive for this measure is to bring the United States Navy up to a standard which shall no longer leave the British Navy with any claim to superiority. Incidentally we would point out to William Shearer and to Senator Hale that this conversion of six earlier battleships would be a distinct breach of the Washington Treaty, which stipulates that no existent capital ship is to be improved in her fighting value. It is rather a quaint anomaly that, while the former of these gentlemen is openly charging Great Britain with bad faith on the strength of misrepresentation, he is emphatically urging an act of bad faith on the part of his own Navy Department.

Possibly we ought to take these frequent comparisons with the British Navy as an indirect tribute to the superior efficiency of our own sea service, for unless this is the implied meaning of them they are absolutely pointless. There is not the faintest possibility of this unfair propaganda ruffling the equanimity of the two governments, where the simple truth is perfectly well known. But one mischievous effect lies in its influence upon public opinion. This is exactly what Mr. Shearer and Senator Hale are aiming at. They want to stir public opinion so as to ensure the passing by Congress of such measures as they may introduce. In our view it is simply an unworthy and regrettable procedure.

No country has been more strictly punctilious in her observance of the terms of the Washington Agreement than Great Britain. No country

among the signatory powers has put herself at greater disadvantage in consequence. Take a case in point. The battleship *Monarch* is to be sunk by gunfire early in January. Had she been sold for breaking up it is estimated that she would have produced between £40,000 and £50,000 for the public purse, but there would not be time enough in which to scrap her and comply literally with the letter of the Washington Agreement. So, sooner than risk any suggestion of failure to completely fulfil that agreement, this sacrifice is to be made. Perhaps we are unnecessarily punctilious in these matters, but as an antidate to the Shearers and Hales of international discord it is better that we should be so.

Post-Treaty Ships Under Discussion

Washington Star, 16 December, 1924.—Details of the size and power of armament of the first post-treaty capital ships to be built by Great Britain were laid before the House naval subcommittee, yesterday, by Captain Henry H. Hough, director of Naval Intelligence.

The new British battleships, *Rodney* and *Nelson,* 35,000 tons, will carry nine 16-inch, 50-caliber, wire-wound guns, mounted three to a turret, with all three turrets in the forward part of the ship, he said.

"These ships will have a standard (treaty tonnage) displacement of about 35,000 tons," Captain Hough explained. Their length will be 702 feet. Their extreme beam will be 106 feet. Their mean draft at standard displacement will be thirty-feet. Their main armament will consist of 16-inch, 50-caliber, wire-wound guns in three triple turrets, situated in the forward part of the ship. There will be no stern fire from these guns.

"The secondary battery will consist either of twelve or sixteen 6-inch guns mounted in pairs in light, closed turrets. The speed will be probably about 21 knots. These ships will be heavily armored. The main belt will be fourteen inches thick. In addition, elaborate anti-air and under-water protection will be provided."

Captain Hough added that the ships would have a range in excess of 30,000 yards.

Under the Washington Treaty these are the two post-Jutland type battleships England was permitted to build at once, being required to scrap four of her present ships of the *King George V* class when the others are completed next year and put into commission.

Details of the design of the British craft were lacking until the testimony of Captain Hough before the subcommittee became public. They are the only battleships which may be built under the treaty by England, Japan or the United States until the first replacement craft are laid down by these powers in 1931, to be completed in 1934. France and Italy each may lay down a new 25,000-ton ship in 1927 and another in 1929.

By comparison with the American 16-inch gun class ships, the *West Virginia, Colorado* and *Maryland,* and the Japanese equivalent, *Mutsu,* the *Rodney* and *Nelson* will be of greatly increased size and power. The American ships are 624 feet over all in length and 100 feet between perpendiculars. They have a beam of ninety-seven feet and each carries eight 16-inch guns. These ships displace normally 32,300 tons, pre-treaty rating. They have a speed of 21 knots.

Under the standard tonnage rule of measurement fixed by the treaty, the 35,000-ton British ships compare with the equivalent of almost 40,000 tons on the same system of measurement as was used in the American Navy prior to the treaty.

The additional size of the new British ships, indicated in greater length and beam, probably is devoted to intensified underwater protection against torpedoes and added deck protection against high-angle gunfire and aerial bombs. It is taken for granted in naval circles here that these ships will

represent a marked advance over the *West Virginia* class in the protective arrangements demonstrated to be necessary by war experience.

British Navy Tonnage in Accord with Treaty

Charges Advanced in Shearer Suit Over Battleship *Washington* are Dismissed as Absurd When Compared With Terms of Arms Agreement. —By Hector C. Bywater, London, 12 November, 1924.—The action brought by William B. Shearer to restrain the Navy Department from destroying the battleship *Washington* is regarded here as a practical joke in doubtful taste. This seems the most charitable explanation of an affair which is not without a serious side. While Mr. Shearer himself may be out for a bit of fun, it is possible that some people in America, not conversant with the facts, may be deceived by his allegations, which charge Great Britain with deliberately violating the Washington naval pact. It may, therefore, be as well to expose the hallowness, not so say absurdity, of his claims.

From cable messages in the papers today it appears that the battleship *Washington* was to have been sunk on Saturday by bomb and gunfire attack off the Virginia Capes. This vessel, the fourth unit of the *Maryland* class, is included in the list of ships whose destruction is to be finally effected within eighteen months from the coming into force of the treaty. Now the treaty came into force immediately after its ratification on August 17, 1923, so that the United States is pledged to get rid of the *Washington* on or before February 17, 1925.

Mr. Shearer, however, denies that such an obligation exists, because, as he maintains, the treaty has not been properly ratified, and some of the signatories are not living up to the letter of the agreement. As regards the first charge, he evidently has in mind the French Government's delay in ratifying the clauses pertaining to the use in war of poison gas, but the clauses in question do not form an integral part of the naval treaty proper, which has been fully and finally ratified by all five signatory powers. This particular claim may therefore be rejected as inadmissible and frivolous.

In support of his second charge, Mr. Shearer pleads that "the British are far in excess of the tonnage allowed." Instead of 528,000 tons, "the British Government," he declares, "has continued to maintain a navy of 711,000 capital-ship tonnage, and this notwithstanding that when the ships *Rodney* and *Nelson* were completed the British Government was then obligated under the treaty to scrap the *King George V*, the *Thunderer*, the *Ajax* and the *Centurion*."

None of these four ships has been destroyed, though Mr. Shearer "believes that the *Rodney* and the *Nelson* are nearly completed." Unfortunately in this instance, as in others that might be cited, Mr. Shearer's "beliefs" do not accord with the truth.

There is no mention in the treaty of an allotment of 528,000 tons of capital ships to the British Navy. The British Empire is authorized to maintain 580,450 tons, but "on the completion of the two new ships to be constructed (*Nelson* and *Rodney*) and the scrapping of the *Thunderer, King George V, Ajax* and *Centurion*, as provided in Article II, the total tonnage to be retained by the British Empire will be 558,950."

Article II stipulates that "the British Empire . . . may construct two new capital ships not exceeding 35,000 tons standard displacement each. *On the completion of the said two ships* (my italics) the *Thunderer, King George V, Ajax* and *Centurion* shall be disposed of as prescribed in Chapter II, Part 2"—that is, the work of rendering them incapable of warlike service must be commenced not later than the date on which the *Nelson* and the *Rodney* are completed and must be finished within six months from that date.

Consequently Mr. Shearer's entire case is built upon the assumption that the *Nelson* and the *Rodney* are already completed, because even if these

vessels were, as he believes, "nearly completed" Britain would still be justified in retaining her four *King George V* battleships, which need not be dismantled until the two new ships are actually ready for service.

One would have thought Mr. Shearer would at least have made some inquiry into the present state of the *Nelson* and the *Rodney* before going into court on this issue. Had he done so he would have found that the ships, so far from being nearly completed, have not yet been launched. Both are still on the stocks, and neither can possibly be ready for another eighteen months or two years. This fact, which he could have ascertained without trouble, stultifies his whole case and tends to strengthen the view that nothing more serious than a practical joke was intended.

It hardly seems needful to repeat that the scrapping provisions of the naval treaty have been loyally observed by all the signatory powers, and not least by Great Britain, who disposed of all save one of her surplus ships even before the treaty was ratified. Only the other day a photograph of the last ship, the battle cruiser *Lion*, was published, showing her stripped of all armament and upper works and about to be cut in half to facilitate her final reduction to junk.

The United States only waited for the ratification of the treaty to apply the oxygen torch to its condemned dreadnaughts, Japan following suit well inside the specified time limit. The destruction of so much fine material must be painful to every lover of ships, but there is no help for it. Omelets cannot be made without breaking eggs, nor can disarmament be accomplished without scrapping battleships. If Mr. Shearer wants to save the *Washington*, he must first persuade the United States Government to repudiate the treaty. There is no other way.

He is further quoted as asserting that "Japan is far superior in naval force to the United States." Here, again, he appears to be joking, for as one who makes a study of such matters he must know perfectly well that the United States Navy has a marked superiority over Japan in ships and men. Only in cruisers is it inferior.

It would be of interest to know where Mr. Shearer obtains his data. Last April he solemnly announced the actual ratio of naval strength to be at that time 5-3-1, with the United States occupying the third position, instead of standing on an equality with Great Britain. This estimate was denounced in Congress on May 19 as "thoroughly ludicrous," and the assistant secretary of the Navy termed it "a gross exaggeration," as, indeed, it was.

If Mr. Shearer means his statements to be taken seriously, he has apparently got the idea that an international conspiracy exists to undermine American naval power, but, in that event, the United States Navy Department must be implicated in the plot, for the Department's figures of relative strength coincide closely with the British figures.

In any case, no one here attaches the least importance to the *Washington* battleship incident, for it is felt that the American public as a whole will not be deceived by so transparent a maneuver to cast suspicion on the good faith of Great Britain. If the object was to beat up popular support for the Navy bill which is to go before Congress next month, Mr. Shearer must have arranged the affair entirely on his own responsibility, and I doubt whether American naval officials are grateful for his help. No cause benefits in the long run from boosting methods of this questionable kind.

New Flotilla Leaders

Naval and Military Record, 12 November, 1924.—The flotilla leader *Keppel*, which is now nearing completion, is one of the vessels which, having been allocated to Pembroke Dockyard for completion, saved that establishment at a time when there appeared to be danger of its being closed. Like her sister-ship *Broke*, the *Keppel* is a vessel of the *Thornycroft* type, and

both were laid down as long ago as the end of 1918, when the war was coming to an end, at that firm's works at Woolston. In the redistribution of work following the signing of the Armistice, the *Keppel* and *Broke* were allotted to Portsmouth for completion, but were subsequently sent to Pembroke Dock, where the work thus provided was most welcome and timely.

Although they will have been over six years in hand when completed early next year, they will be among the finest examples of this type in existence. In size, speed,, and armament they are more like light cruisers than the destroyers of pre-war days. Their length is 318 feet 3 inches, and each has a displacement of 1,750 tons. With 40,000 horsepower, each will have a speed of 36 knots, and each will also carry an armament of five 4.7-inch, one 3-inch anti-aircraft, and two pompoms, in addition to six torpedo-tubes. In appearance the vessels of the class are decidedly striking. The *Keppel* is so near completion that she is to be commissioned for trials on February 11, and on completion of these official tests she will pay off on February 21. She will commission for service on March 19, and is expected to leave a few days later for the Mediterranean, where she is to relieve the *Stuart* as leader of the Third Destroyer Flotilla.

The Future of Singapore

Army, Navy and Air Force Gazette, 8 November, 1924.—In Australia and New Zealand the hope is confidently expressed that as a result of the political change the development of the Singapore naval base will be proceeded with. The satisfactory thing for Australia, says the *Sun News-Pictorial,* is that an era of settled government, with a definite policy of defense and trade cooperation between the mother country and the dominions, seems to be assured. Australians who study world politics, according to the Sydney *Sun,* regard the Singapore project more than ever as the keystone of the empire's safety. Without this base, declares the *Morning Herald,* the empire in the Pacific is utterly defenseless, and Great Britain's influence for world peace gravely weakened. There is no doubt that the aspirations of Australia and New Zealand—the two dominions most closely affected—in this respect will be satisfied in the near future. A pledge was given by Mr. Amery in his speech on March 18, 1924, that "when we on this side of the House are in power again we shall not lose an instant in resuming this scheme."

New First Lord

Naval and Military Record, 12 November, 1924.—It was generally expected that when the selections for the new Cabinet came to be announced it would be found that L. S. Amery would return to the Admiralty as first lord. During the time he was at the Admiralty—1921-22 as financial secretary and 1922-24 as first lord—he was much liked in the fleet, not only because he was keenly interested in the duties of his position, but was a real friend of officers and men. His return to the Admiralty would therefore have been popular, but instead he becomes the secretary for the colonies and W. C. Bridgeman fills the rôle of first lord of the Admiralty. The new first lord, who will be sixty years of age next month, has had considerable experience in public life, and was home secretary in the last Conservative Government, but this is the first time that he has held an appointment at the Admiralty. It will probably be found that the naval policy under the new régime will be on the lines outlined before Mr. Baldwin's Government went out of office last January, and the new construction proposals which Mr. Baldwin made public at Plymouth will be re-endorsed.

So far as the army and the Royal Air Force are concerned, the position is practically unaltered. Sir L. Worthington-Evans was Secretary for War

in 1921-22 and postmaster general in the last Conservative Government, and the fact that he is returning to the War Office indicates that the duties there are congenial, and that no startling changes may be expected. The same may be said with regard to the post of Secretary of State for Air, in which Sir Samuel Hoare, who held that position in Mr. Baldwin's Government, again assumes the duties of that appointment.

Earl Beatty Sharply Attacked for Part in Jutland Battle

By H. C. Bywater, Baltimore *Sun*, 6 January, 1925.—London, January 5.—A stir will be caused in naval circles tomorrow by publication of a book entitled, *The Jutland Scandal*, the author being Admiral Sir Reginald Bacon, an officer with a distinguished war record. It is dedicated "to those two neglected goddesses, Justice and Truth, now worshipped in an obscure corner of the British Pantheon."

The book, in effect, is a defense of Admiral Jellicoe's tactics at the battle of Jutland and a slashing assault on Admiral Beatty, who replaced Jellicoe in command of the grand fleet.

The main heads of Bacon's indictment are:

First—That whatever failure occurred at Jutland was the fault not of Jellicoe but of his subordinate, Beatty.

Second—That Beatty committed an unpardonable blunder in engaging the Germans without waiting for his four *Queen Elizabeth* type battleships, which were seven miles astern, and so lost the chance of bringing an overpowering concentration of force to bear against the enemy. Had he waited for these ships, argues Bacon, "the ensuing action, instead of being practically a defeat for our ships, might well have been a brilliant success."

Third—That Beatty's battle cruisers were worsted in the first part of the action owing to bad shooting, for which he was to blame.

Fourth—That Beatty's failure to maintain touch with the enemy during his subsequent run northward left Jellicoe without precise information to guide his deployment of the battle fleet.

Fifth—That Beatty throughout the battle ran true to the form that might have been predicted in view of his inexperience and lack of judgment.

Every charge in this indictment is supported by detailed evidence. With regard to Beatty's lack of experience Bacon quotes Winston Churchill, former First Lord of the Admiralty, as confessing that one reason for the rapid promotion of Beatty over the heads of many senior officers was his (Churchill's) admiration for Beatty's prowress on the hunting and polo fields. Bacon comments caustically on such qualities governing the appointment to high naval command.

Challenging the popular theory that if Beatty had commanded at Jutland in place of Jellicoe the Germans would have been annihilated Bacon says: "Taking the whole of the evidence into quiet thought there is little doubt all will echo a short prayer and thank God that Lord Jellicoe commanded the grand fleet both before and at the battle of Jutland."

Of Beatty's famous fighting run northward, with the German battle fleet in pursuit, Bacon says:

"If any confusion existed it was not in the German Fleet, but our own battle cruiser fleet waltzed around like a kitten after its own tail. It is believed the reason for this excitement was that the gyro compass went wrong, but at all events Beatty, far from leading the Germans into a trap from which there was no escape, was busy trying to straighten up the confusion among his cruisers."

To appreciate the point of Bacon's criticisms it is necessary to recall that Beatty has been First Sea Lord of the Admiralty since 1919, during which period the Jutland controversy has developed in its acutest form.

Bacon implies that Beatty's partisans have taken advantage of their official positions to circulate biased versions of the battle with the object of extolling Beatty and belittling Jellicoe.

Bacon is especially severe on the Jutland narrative published last July by the naval staff, instead of the Harper report, which was suppressed. He describes the Jutland narrative as a "document in which innuendo is present and in which facts are glossed over and suppressed," the whole being "pervaded with a nasty flavor."

It is well known that Admiral Jellicoe took strong exception to certain statements in this narrative, which was submitted to him in proof form while he was in New Zealand as Governor-General. Publication was not deferred on that account, but Jellicoe's criticism were printed as footnotes with "nagging, discourteous" admiralty comments thereon, according to Bacon.

Beatty's omission to defend Jellicoe from aspersions is, says Admiral Bacon, "a failure in chivalry on his part which will never be forgotten nor forgiven by the royal navy." Elsewhere Bacon writes:

"One of the misfortunes arising from refusal of the admiralty to publish the Harper report has been the press campaign that has been carried on eulogizing Beatty and disparaging Jellicoe. Lord Beatty's silence has inevitably compromised his reputation as an admiral, since his silence must be taken as tacit agreement with these criticisms."

Answering the claim of Beatty's admirers that he was prepared to sacrifice all his ships if this had been necessary to accomplish the destruction of the German fleet, Bacon says: "We quite agree, but as Lord Beatty never accomplished it, having neither chance nor opportunity, there is no reason for cheap heroics of this nature."

Admiral Bacon is one of the intellectual officers Lord Fisher gathered around him during his admiralty service. He commanded first a dreadnaught. Early in 1915 he was appointed to the highly important Dover patrol command, which he held three years. He is recognized as one of the world's leading authorities on naval gunnery, also as a clear exponent of strategy and tactics. In the preface he mentions, "Lord Jellicoe had no hand directly nor indirectly in the inception, writing, editing or publishing of this book."

King Recently Elevated Jellicoe to an Earldom

Earl Beatty, whose wife is a daughter of the late Marshall Field, of Chicago, commanded the first battle cruiser squadron at the battle of Jutland. Admiral Jellicoe was in command of the grand fleet, but shortly after the engagement was retired to the admiralty, giving way to Beatty. Jellicoe's transfer was due to dissatisfaction with his manner of handling the grand fleet.

Admiral Jellicoe was placed on the retired list a month ago when he reached the age of sixty-five. In the King's New Year's honor list he was elevated to an earldom.

FRANCE

French Navy Notes

By J. B. Gautreau, *Naval and Military Record*, 5 and 12 November, 1924—Germany is recuperating wonderfully, escaping from the consequences of her defeat, and accumulating reserves of strength that will be used next "Tag" to achieve what she failed to do in 1914-18. Her resources in men remain unimpaired owing to the rapid growth of her population and to the avowed desire of Austria to join the German Empire. Her faith in the

future of *Deutschthum* is greater than ever. Her growing generations are taught Bocheland was not responsible for the war and never was defeated; and this belief is naturally confirmed in the German mind by the gratuitous evacuation of the Ruhr and by the Allied loan to poor, wronged, devastated, and ruined Germany—a beautiful comedy that will not need to be renewed again, for next time Germany will have everything her own way. There will be no mighty Czar's empire to serve as counterweight, but, instead, a starving Soviet Republic, to be the tool of Berlin; no Italy, to be minded as a possibly enemy of Germany, for, since the disruption of Austria, Italy, mistress of the Adriatic, has started on a new course of naval and colonial expansion in the Mediterranean. As to France, she would hardly be capable of repeating the unparalled effort of fortitude she displayed from 1914 to 1918, for not only has the war tremendously weakened her materially, but her morale is also affected as the result of the unexpected treatment she has received at the hands of her Allies. A few years hence Germany will be bidding for industrial and commercial supremacy, with assets relatively greater than those she possessed before, and the path before her will be clear of most of the obstacles that stood before her in 1914.

With admirable will and forsight, Germany is actively preparing for her great future of European domination. The slender fleet left to her by the Versailles Treaty she is methodically using for training and experimental purposes. Her 13,000-ton battleships are carrying out prolonged cruises and maneuvers, and German ingenuity making up for deficiencies in the *matériel*. Those exercises are as up-to-date and as comprehensive as in any other fleet, probably more so in what concerns the science of camouflage, screening, and wireless and torpedo practice. There are two factors in navies: viz., what is seen on the surface, the condition of the ships ready for war, and, on the other hand, the moral side, the spirit. The former in the Boche fleet is so insignificant as to be a matter of derision; the latter, however, is more formidable than before the war, as can be seen from the propaganda openly going on in the fatherland and from the teaching imparted in special schools. Indomitable faith animates those young aspirants of the Berlin cadet ship that has just left for a protracting training and showing-the-flag cruise in the Atlantic. The last war, that in English and French eyes marked the final wreck of wild Boche sea dreams, they, on the contrary, genuinely view, and with glowing hearts, as the triumph of German technical superiority and heroism, as the proof also that sea power no longer resides in big ships and guns, but rather in scientific capabilities and in the secret of springing surprises upon the enemy.

This is a delusion, no doubt, but a delusion dangerous to the peace of the world, especially when added to the fact that Germans are entitled from the experience of the war to consider their shores as being immune from enemy attacks, from bombardments, and landings. German cruiser squadrons and submarines bombarded English coasts, but English squadrons proved powerless to retaliate, although Admiral Degouy (and English flag officers) kept repeating for three years: *Attaguons les chez eux!* and pleading for a landing on German North Sea shores. Hence, for German naval men the comfortable feeling that offensive may without danger absorb the whole naval effort of the fatherland, in striking contrast to the present French maritime policy, that aims solely at defense, in what regards both training and shipbuilding.

No wonder German experts hold their country is more advantageously situated for the purposes of sea warfare than is France, with her immense and vulnerable sea border and the obligation under which she is placed of keeping two distinct fleets—one in the North, the other in the Mediterranean The German Navy may be for the present, and only for a short time (the Versailles Treaty being a "scrap of paper," just as much for sea as it is

for land clauses), subdued and delayed in expansion; it has, nevertheless, more vitally than the French, for the reason that the German nation is taught the value of the sea and understands that English sea might proves the only insuperable obstacle between Deutschland and victory. Over-populated Germany needs expansion; that is to say, naval and aerial power, whereas self-supporting, under-populated France possesses all she needs, a contrast sadly lost sight of by good intentional English polititians, who forget that the France of today is not the France of Louis XIV and Napoleon, and can never be economically the rival of Great Britain, but ought to be treated as the natural ally, and the only possible ally, of England on the Continent against the strong industrial and military *Deuschland über alles* ideals.

Député (and Commandant) Le Courgrand-Maison, who is the foremost naval expert in the Chamber since the resignation of Admiral Guépratte, continues in the Gaulois his vigorous offensive against Jeune Ecole doctrines. Not only, he contends, will the seaplane not drive the surface ship out of the water, but it will protect it efficaciously against its worst enemies: viz., submarines and torpedo craft of all sorts, while controlling the fire of big guns, and therefore rendering battleships more efficient. In truth, sea power will henceforth reside in the cooperation of battleships, seaplanes, and submarines, constantly and harmoniously working together, and independently of numbers, that fleet will be strongest which nightly and daily keeps training in the practice of the *tactique combinée des trois armes balistiques sousmarine et aérienne*. It looks as if, up to the present, the British Navy were the only one in a position to fulfil these desiderata; for lack of up-to-date *matériel* the French Marine is training very much on pre-war lines.

Rightly or wrongly, French experts fancy they see dark clouds fast gathering over the Pacific, and the moment approaching when war will be called upon to settle the antagonism, racial and economical, for long existing between Japan and America. Admiral Degouy foresees grand naval operations with Japanese landings (being cleverly prepared already) on American territory, and he notes the earnest preparations the American Navy is making with a view parrying coming blows, especially in the program of maneuvers framed for the spring, 1925, when a good part of the Atlantic fleet will pass into the Pacific, carry out mimmic warfare round the Hawaiian Islands, and accomplish runs to Australian waters. In his opinion Australia will join in the fray, and monster Japanese submarines (made on German plans) will play a sensational and decisive rôle. This is a horrid outlook, truly, but happily the Societé des Nations, is there with an ample supply of pacifists saliva to promptly drown all embers of strife. All the same, the *Paris *Yacht* thought it timely to minutely compare Japanese and American fleets, and the conclusion is that the Japanese Navy, patriotic, whom, hard working and practical, has every chance of winning against the huge make-believe Navy of America. Money can do much, but is no substitute for patriotism and the spirit of self-sacrifice. American human element is inferior, as shown by the incredible number of desertions (a thing unknown in the French service); and too much trust is put in electric machinery, mostly unprotected, which a single shell might put out of order. Tactically at a disadvantage, the American Navy is, besides strategically handicapped, and would share a fate similar to that of Rodjovensky's armada. This opinion, however, is too hard on the American Navy, that possesses splendid officers and superior recuperating power.

What is the Worth of the New French Fleet

The new French Fleet is being reconstituted apace: within three days there have been launched, at Lorient, the 2,400-ton destroyer *Panthére* (October 29), in the presence of Minister Dumesnil and Chef d'Etat-Major

Salaun; at Bordeaux the 1,470-ton *Tramontane* (on October 29), and her sister ship *Trombe* (October 27) at Harfleur. The *Panthère* is due to be delivered in April, 1925, the *Tramontane* in January next, and the *Trombe* two months later. Of the six *Countretorpilleurs* of 2,400 tons there remains on the stocks only the *Lynx*, at St. Nazaire (Chantiers de la Loire), that has over 660 tons of materials worked in her hull up to the forecastle. Other units are progressing rapidly. The *Leopard*, *Chacal*, and *Tigre* are shipping their boilers (five in number) and adding to their superstructures. The *Jaguar*, at Lorient, has a completed appearance, and is likely to be ready for December next. As to the 1,470-ton torpilleurs, it is expected all of them, twelve, will have been floated before the end of the year, and enter the service soon after the scheduled dates. The case, however, is different with the twelve submarines in hand, most of which will be delayed by a few months.

With luck the French Fleet ought next year to be reinforced by thirty-three new units: viz., three cruisers of 8,000 tons, six 2,400-ton and 36-knot destroyers, twelve 1,470-ton and 33-knot *torpilleurs*, and twelve submarines—altogether not quite 70,000 tons, which is the aggregate tonnage of the British battleships in hand. This increment of strength, the first to be noted in the French Navy since 1915 (when the *Lorraine cuirassés* entered the service), is too insignificant to change materially the relative situation of the French Navy as compared with the British and the American. The American Fleet has in its ten excellent *Omahas*, though slightly inferior for speed (33 against 35 knots), a cruiser force much superior, the American ships being superior to the *Duguay-Trouins* for end-on fire, while the British cruiser fleet will next year be to the French in the proportion of ten to one, though there will be an advantage of speed in favor of the French: for the first time for over twenty years there will be nothing in the British naval service quite capable of catching our latest *croiseurs rapides* at sea, at least if the three *Duguay-Trouins make* the best of their tremendous motor-power: viz., 116,000-horsepower, or some 40,000-horsepower more than indicated in the *Frobishers*.

Where, however, the simultaneous coming into service of so many light units will cause visible change is in the Mediterranean. For the present the Italian Fleet is superior to the French for speed, a matter of vast importance in those waters where the naval game will consist in safely running convoys from one point to another and in interfering with the enemy's movements and communications. There is no doubt as to the superiority of the *Duguay-Trouins*, that carry eight guns of 6.1-inch in twin turrets of new type, over the ex-Boche and Austrian 5,000 and 3,500-ton cruisers of Italy, that have smaller calibers of earlier pattern indifferently protected behind shields. As a matter of fact, the new French *croiseurs-légers* from their wonderful speed and quick-firing armaments, are splendid destroyers of destroyers, and no craft in Italian flotillas would be able to escape from their deadly grip, at least in clear weather. It must be said that progressive experts consider the question of visibility as being capital for the utilization of warships. Smoke screens and camouflage tricks will, of course, work in favor of units offering the smallest targets, and the same is to be said of night warfare, that will play the main rôle in the Mediterranean, as maneuvers and experiments have shown. For these reasons the Mediterranean, it is contended, had better be left to *poussière navale*, that has least to fear from the thousand flying machines (Italy alone has 1,900) which are likely to swarm over those waters in war time. Brest is therefore the night base for the ultra-rapid division of cruisers.

The two 10,000-ton cruisers *Tourville* and *Duquesne* are enlarged copies of the *Duguay-Trouins*, the difference being in the caliber of the guns, 203 millimeters instead of 155, and in the motor-power, 20,000 h.p. more;

in the length, greater by 10 meters. French constructors are repeating, on smaller lines, what English designers did with the *Queen Elizabeth* and *Royal Sovereign* classes, and there are good arguments to commend that course, progress being being gradual on known and safe ground. Too often in the past the great talent of our *ingénieurs* has been wasted in endless innovations, especially from 1890 to 1900, when there were within ten years eight different types of battleships: viz., *Brennus, Jaureguiberry, Tre-Houart, Vaimy, Bouvet, Charlemagne, Jena, Suffren*, and as many types of cruisers, at the very moment when the able Sir William White was displaying his persevering method and *esprit de suite* in perfecting his *Majestics*. It seems, moreover, that the distribution of four twin turrets on the axial line in echelons, as in the *Queen Elizabeths, Hoods* and *Duguay-Trouins*, is calculated to ensure the maximum arc of fire and command. At the same time, and while acknowledging that paper value and number of guns do not express the fighting worth of ships, French naval men are disappointed at the thought that the *Duguay-Trouins* will be undergunned when compared with their rivals (Italian, British, and American), that are credited with armaments of ten or even twelve 203 millimeter guns in triple or twin turrets. Regret is expressed that use has not been made of the 10,000-ton *croiseurs* of the quadruple turret type, which would be especially valuable against chemical offensive, and which would have made it possible, through the economy realized in weights, to mount an armament of twelve guns, designed to fire by salvos.

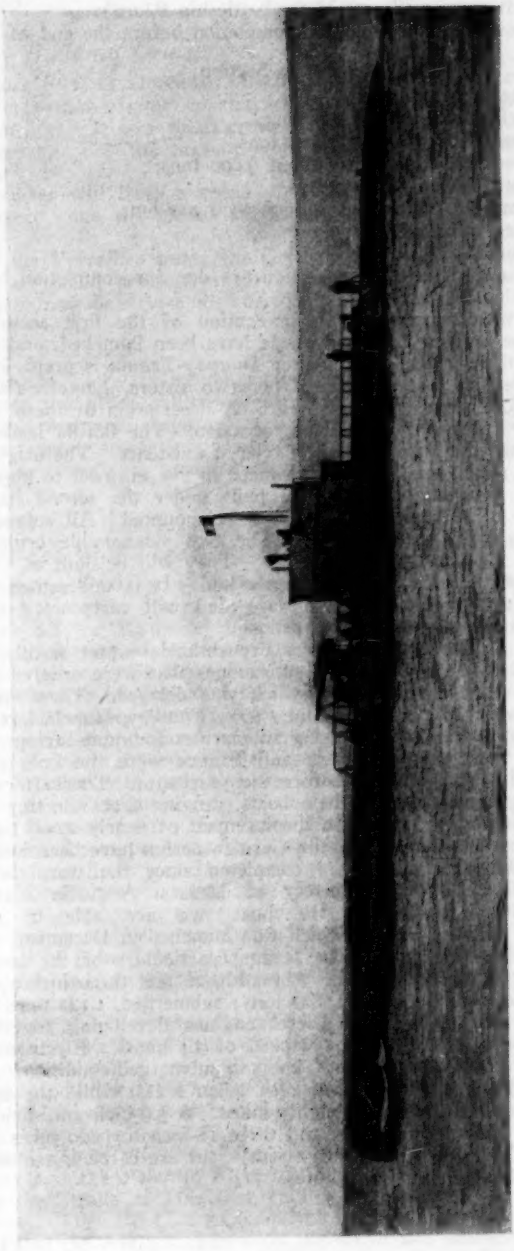
French Naval Construction

The Engineer, 21 November, 1924.—Compelled by military exigencies to suspend all major naval construction during the war, France found herself at the end of the struggle with a more or less obsolete fleet. She had no capital ships embodying the latest tactical principles, no light cruisers of modern design, no aircraft carriers, and few destroyers or submarines that were really up to date. Although the French naval forces had performed a great deal of valuable work in the Mediterranean and northern waters, their war record was overshadowed by the achievements of the army, which had been more in the public eye. When, therefore, the time came to provide for the peace requirements of the two services, the cleams of the navy received scant attention, and it was not until March, 1922, that a systematic program of new construction was adopted. In the interval France had been reminded of the importance of sea power by the proceedings at the Naval Conference in Washington, where in spite of her more extensive maritime interests she was placed on the same level as Italy with regard to strength in capital ships. This was resented by many French critics as an affront to the national dignity, but French naval opinion, as a whole, took the matter calmly, having made up its mind that since the battleship had ceased to be the key factor of relative strength, the limitation of her battle fleet need not prevent France from maintaining a dominant position in the Mediterranean. To achieve this object, it was deemed essential to create a powerful force of light high-speed surface vessels, a new submarine flotilla, and a large establishment of aircraft. Hence the program of 1922, of which the first part is now approaching completion.

The two sections of the program provide respectively for the following vessels:

First Section

Three cruisers of 8,000 tons,
Six flotilla leaders of 2,400 tons,
Twelve destroyers of 1,400 tons,
Twelve submarines of 600 to 1,148 tons and



THE FRENCH MINE-LAYING SUBMARINE "PIERRE CHAILLEY"
Augustin Normand Et Cie., Havre, Builders and Engineers

One aircraft carrier (formerly the battleship *Béarn*).
All the above ships are due for completion before the end of 1925.

Second Section

Six cruisers of 10,000 tons,
Fifteen flotilla leaders of 2,400 tons,
Twenty-four destroyers of 1,400 tons,
Two submersible cruisers of about 3,000 tons,
Thirty submarines of 1,385 tons,
Seven submarine minelayers of 600 to 1,300 tons,
Two surface minelayers, and
Four oil tankers.

All the vessels in the second section are due for completion by 1931 at latest.

No delay is anticipated in the execution of the first section of the program. The majority of the vessels have been launched, and some will shortly begin their trials. The cruiser *Duguay-Trouin* is preparing for sea at Brest, where she was built, and her two sisters, *Lamotee-Picquet* and *Primauguet* both went afloat this year. A description of these interesting ships must be reserved for a future occasion. The flotilla leaders of the *Jaguar* class are the largest of their type in existence. The original armament of six 5.1-inch guns has been reduced to five in order to improve their seaworthiness. In the leaders to be built under the second half of the program guns of still larger caliber may be mounted. All submarine construction is well up to time-table. The two submersible cruisers noted above are the *Vengeur* and *Redoutable*. They will be built at Cherbourg, where the keels may have been already laid. It is understood that they will displace 2,700 tons on the surface, and will carry an exceptionally powerful armament of guns and torpedoes.

In addition to the new boats, the French under-water flotilla has been reinforced since the war by a few submarines that were ordered under the war program, the completion of which was delayed. These include the minelaying boats *Maurice Callot* and *Pierre Chailley*, launched respectively in 1921 and 1922. The idea of using submarines for mine-laying operations antedates the war, though Russia and France were the only powers to build vessels for that purpose before the year 1914. Thereafter Germany turned out a great number of these boats, ranging from the tiny *UC* class to large ocean-going craft with a displacement of nearly 2,000 tons. It is possible that certain features of the German design have been incorporated in French submarine minelayers completed since the war, though this is pure surmise. By the courtesy of Messrs. Augustin Normand et Cie., of Havre, who built the boat, we are able to reproduce a view of the *Pierre Chailley*, which was launched in December, 1922, and carried out trials this year. The leading particulars of the boat are as follows: Length, 229 feet 8 inches; breadth, 26 feet three inches; draught, 13 feet; displacement on surface, 827 tons; submerged, 1,122 tons. Surface propulsion is effected by two Diesel engines developing together 1,800 brake horsepower, equivalent to a speed of 14 knots. Electro-motors of 1,200 horsepower drive the boat at 9 knots in submerged condition. Sufficient fuel is carried for a surface cruise of 2,800 miles, while the submerged cruising endurance is limited to eighty miles. A 3.9-inch gun, firing thirty-pound shell, is mounted on deck, and three 18-inch torpedo tubes are fitted in the bows. The mines, of which twenty-four are carried, are understood to be ejected through inclined chutes.

GERMANY

Germany Building Cruiser

Baltimore *Sun*, 11 December, 1924.—Kiel, Germany, December 10.—The first German man-of-war constructed since the World War is nearing completion here. It is a small cruiser of 6,000 tons and is to be launched in the spring. For the present it is unnamed, being designated by the letter "A."

The cruiser will have a speed of 29 knots, will be armed with eight 15-centimeter guns, all placed amidships, and will use both oil and coal for fuel.

Under the Versailles treaty the German Navy is limited to six ships of the line, six small cruisers, twelve destroyers and twelve torpedo boats. The cruisers now in service all date to 1900 and are admittedly obsolete.

Find War Supplies

Washington Star, 11 December, 1924.—Paris, December 11.—Recent reports from the allied military control mission in Germany have caused considerable worry in allied quarters. The mission, it is stated, has found numerous secret stores of newly manufactured arms and some newly perfected weapons, such as anti-tank guns.

JAPAN

Japanese See War Threat by America in Fleet Maneuver

Washington *Post*, 30 November, 1924.—Tokyo, November 29 (By A. P.).—Nationwide protest by Japan against projected American naval maneuvers off the Hawaiian Islands was sought by the Kokumin Tabei society at a meeting of leaders of the organization tonight, which has for its purpose the study of Japanese-American problems. A resolution adopted by the leaders to be presented for approval of the full organization at a meeting on December 7 says:

"We regard grand naval maneuvers about to be carried out by the American Navy as a menace to the peace of the Far East and destroying from its foundation the spirit of the Washington agreement. We hope the United States will abandon this scheme as we desire world peace."

Osaka, November 29.—The *Osaka Mainichi*, one of Japan's largest and most influential newspapers, sees in the proposed American fleet maneuvers in the Pacific a direct war threat against Japan and predicts editorially that the event foreshadows a remarkable change in international relations of the world.

"The purpose of the maneuvers," the editorial states, "doubtless is to study how to fight Japan—and the cruise of the American Fleet to the Hawaiian Islands in fighting trim will make the breaking out of war inevitable."

The writer points out that the only point that differentiates the maneuvers from practical warfare is that the fleet does not proceed direct from the Hawaiians to the Philippines, but to Australia and New Zealand. If the fleet should proceed direct to the Philippines from Hawaii, he believes, the move should be regarded as open hostilities against Japan from the tactical point of view.

A translation of the text of the editorial is a follows:

"Years ago the Atlantic Fleet of the United States came to the East through the Straits of Magellan, calling on Japan on its way back to the home base. The late Colonel Roosevelt, who was President at that time, declared that the cruise was to show the might and efficiency of the United States Navy, but it was an undeniable fact that the crew took the cruise as

meaning war with Japan, and a great number of American blue jackets deserted their fleet on their way to this country. As the fleet approached Japan, American officers, not to say sailors, became extremely nervous, thinking that war was inevitable. When they arrived in Yokohama, they were received with enthusiasm, to their agreeable surprise, by our navy as well as by the general public.

"The sixteen battleships which formed the nucleus of that fleet, and which supplied the world with such an episode, were the best fighting force of the American Atlantic Fleet. Its formation was made in accordance with the principle of peace standing and it had no supply ships nor any auxiliary weapons. It may have been judged from its formation that the purpose of the cruise was not to fight.

"But the grand maneuvers which the American Navy is going to hold in January next are greatly different from the cruise of the former occasion. They have no doubt an important meaning. It is not improbable that a remarkable change will occur in the international relations of the world.

"The plan of the maneuvers is to study how to concentrate the whole forces of the American Navy in the Pacific, how to defend the west coast of the United States to examine the capabilities of San Francisco as the base of operations, how to carry out a cruise in which a large number of warships are assembled, and how to defend the Hawaiian group. Immediately these maneuvers are over, the American Fleet will call on Australia and New Zealand in order to make them participate in the second phase of the maneuvers with a view to enforcing the crossing of the high seas by a fleet and studying how to transfer munition supplies on the open seas and how to maintain lines of communication.

"It is not known so far what pact will be effected but the government of the United States allowed papers to publish openly that Australia and New Zealand will participate in the maneuvers. In this connection the imperial diplomatic authorities will be justified, in our opinion, to ascertain the fact from the British Government.

"The purpose of the maneuvers, doubtless, is to study how to fight Japan. Judging from the formation of the fleet as well as from the plan of operations, it is evident that the American Fleet is going to test its fighting capabilities. The only point that differentiates the maneuvers from practical warfare is that the fleet does not proceed from Hawaii direct to the Philippines, but to Australia and New Zealand. If it does proceed direct to the Philippines, it may be regarded as direct hostilities to Japan from the tactical point of view. However impudent and insolent the United States may be, she appears to be afraid of such conduct and has adopted such a plan of operation.

"However, if the United States Fleet should proceed from Australia and New Zealand to the Philippines, it may justly be looked upon as a bellicose action. It is our earnest desire that the authorities on foreign affairs will take proper caution to persuade the United States to avoid such bad tricks in international play.

"When the Washington conference on disarmament was proposed, certain statesmen and others of the country were angry with the United States, whose intention they believed was to weaken the fighting capabilities of Japan. We do not know whether their argument was justified, but, judging from the United States' policy toward Japan, their allegations seem to have had grounds. Now that the suspicion of the Japanese toward the intention of the United States already has reached its climax, the American project of maneuvers is not timely.

"To make matters worse, the preparatory schemes planned by the American authorities last summer in the Pacific have been detrimental to the strained relations between both nations. Mr. Wilbur, American Secre-

tary of the Navy, openly stated that on both shores of the Pacific there were nations who were incompatible to each other, and further that if the Japanese did not come around to sanity they would have to be shown what cold steel is.

"A major general of the American air forces made a tour to Hawaii and the Philippines on the pretext of a honeymoon, to inspect the conditions of air forces in those groups, in consequence of which it was decided to send there ten more bombing planes, and other formidable preparations were added to the defense forces in those archipelagoes.

"A former commander of the Hawaiian Islands held an inspection of the garrison and satisfied himself that all necessary equipment for that garrison was in good condition. A mine sweeper was dispatched to Hawaiian waters to make a survey and take soundings. These incidents, considered as separate matters, may have no significance, but if combined with the projected maneuvers of the American Navy, they are full of formidable meaning.

"The occupation of the Hawaiian group by the American Fleet on conditions of practical warfare may well be regarded as a bellicose spirit, and the cruise of the American fleet to these islands in fighting trim will make the breaking out of war inevitable. Why does the United States intend to intimidiate her neighbor with the creation of such conditions? The project is too bold an attempt at bluff, and we cannot but call upon the United States for prudence and modesty."

Move to Placate Japan Launched

By Frederic William Wile, Washington *Post*, 2 December, 1924.—Japanese popular demonstrations assailing the 1925 American naval maneuvers in Hawaiian waters as a "menace to the peace of the Far East" coincide with a new national movement in the United States to cement friendship with Nippon. It is fathered by the National Committee on American-Japanese Relations. Former Attorney General George W. Wickersham is chairman of the committee, and Americans prominent in finance, commerce, the law, university life and religious activities are members of the "advisory council." The committee has set itself the primary task of urging that after July 1, 1927, Japanese be included in the quota provisions of the new immigration law. "Thus," the committee's manifesto says, "will be laid the foundation for right relations between the two countries."

It goes without saying that the immigration of a certain section of Japanese public opinion, as expressed by resolutions of the Kokumin (patriotic) Society and and anti-American *Osaka Mainichi* newpaper will not effect the Navy Department's plans for the Pacific maneuvers. It has never been intended to extend these maneuvers to Philippine waters, so the *Mainichi's* "dare" to us to do so is meaningless. The Navy Department's stragetic problems, to examine which is the purpose of the projected maneuvers, are concerned mainly with the defense of the Hawaiian Islands. The Oahu district of Hawaii has been described by General Leonard Wood, governor general of the Philippine Islands, as the "Key" to America's entire Pacific situation. It is around and about this "key" position that the impending maneuvers will range. Secretary Weeks, in his annual report to Congress on behalf of the War Department, has just outlined the necessity of maintaining Oahu as "an advanced base from which the Navy may operate in maintaining control of the Pacific and in defending our West coast, or as a way station on the Philippine route."

The National Committee on American-Japanese Relations makes few bones about the seriousness of the irritation which Japanese exclusion from the United States has caused in Nippon. "Causes of irritation," the committee says, "should not be left to work out their inevitably disastrous

consequences. Courageous and loyal patriots in America and in Japan should face the facts. They should insist that all matters of difficulty can and should be settled by reason, conference and conciliation. Steps should be taken promptly in both countries to provide the people with the needed information and to obtain the necessary changes in the national mind. 'Sincere and cordial amity' should be maintained, misunderstandings removed, wise policies adopted and appropriate legislation enacted in both countries."

The committee lists as the "developing difficulties" between the United States and Japan questions concerning (1) significance of race difference; (2) immigration; (3) assimilation and naturalization; (4) treaty rights; (5) population and territory; (6) relations with China, and (7) economic competition and national policies. "On all these matters," the committee declares, "there is much misunderstanding in both countries and no little positive misinformation. They cannot be correctly stated, much less can they be really solved by impulsive, prejudiced emotionalism or by popular dogmatism."

This writer has had access to some remarkable statements made at a private dinner held in New York early in November by a group of church organizations specializing in cultivating friendliness with Japan. The statements, which have just been printed for circulation among interested people, were made by Cyrus E. Woods, of Pennsylvania, late American Ambassador at Tokio. Mr. Woods resigned his position in June, 1924, as a protest against the enactment of Japanese exclusion by Congress."

"The Christian movement in Japan suffered a staggering blow by the action of Congress," said Mr. Woods. "That action has set back religious work by twenty-five years. Greater also than as yet realized in America is the harm that has been done to commerce and to diplomacy. Japan's wounded feelings, deep and bitter, will remain, and can be removed only by appropriate congressional action in this country. The only solution I can see is fresh action by Congress placing Japan on the quota basis. This would admit only 146 Japanese annually—a negligible number— and it would completely change Japan's feeling and attitude toward this country. I cannot find words to describe the situation existing in Japan today because of our exclusion legislation. It is a disaster of the first magnitude, a disaster to business, a disaster to religion and a disaster to diplomacy."

Japanese Admiral Scores Suspicion

Washington *Star*, 6 December, 1924.—Tokio, December 6.—Admiral Okada, the new commander-in-chief of the imperial joint naval squadrons, told the correspondent of the Associated Press that he would assume responsibility for asserting that the imperial navy felt no concern about the American Navy's proposed Pacific maneuvers.

Such exercises, carried out 3,000 miles from Japan, "though maybe on a little larger scale and of greater duration," than usual naval maneuvers, "signify very little in our eyes," he said.

He said that were he a statesman he would feel far more deeply about the attitude of the press, "ever intent on making capital of matters of this kind."

"Here they fret and fume about ulterior intentions of America, while there they write about Japan's suspicions," he said. "One is as groundless as the other."

"I do not deny that some suspicion is entertained by a limited section of our public, but I do assert that it is far from the sense of the entire Japanese nation or navy.

"Our Bushido teaches us to feel and cultivate sympathy with men of the same profession. It is written that 'Warriors should aid and sympathize with one another.' Individually, personally, as a fighting man in the service

of my country, I am sympathetic with the tremendous enthusiasm with which the warriors of a neighboring country are trying to foster a martial spirit among the men behind the guns so that they may acquit themselves with honor and credit in case of emergency. We are dong just the same thing. Such a spirit of emulation should not be discouraged, because it will do immense good instead of harm if given broad, far-sighted statesmanship to guide it for the good of mankind.

"The word 'preparedness,' invented in America, expresses a principle as old as time among men of arms," said Admiral Okada.

"I am perfectly frank in thus expressing myself," he said. "Why shouldn't I be? I am not talking like a diplomat, for under no circumstances am I forced to sugar-coat my opinions. The only fear that possesses us soldiers is that we may not be able to fulfil our duty to the state and the Emperor in time of emergency in a manner the nation expects us. We have no other worry under the sun. We hate and condemn the idea that we should be in any way concerned about the coming maneuvers of the American Navy. We are not so hysterically disposed and suspicious about what other nations may do. On the contrary, our sympathy goes out toward those, no matter of what country, who love their motherland and for that love forget every selfish interest. We ourselves have been trained in this faith from the cradle."

Japan Rushing New Navy Construction, Wilbur Discloses

Washington *Post*, 15 December, 1924.—That Japan is rushing construction of new war craft of the types to which the navy limitation treaty does not apply and that Japan recently held naval maneuvers predicated on war with the United States were disclosures Secretary of the Navy Wilbur recently made to the House committee on appropriations.

"The Japanese Navy," Secretary Wilbur told the committee, "has, within the last few weeks, engaged in maneuvers on a very great scale, involving mobilization of the entire navy. The sum of 4,275,000 yen (approximately $2,150,000) was allocated for this purpose in the Japanese budget of 1924-25. These maneuvers were held off the south and east coasts of Japan and represented a navy attack in major strength by a blue fleet advancing against Japan from the south and east."

This is the form in which the Secretary's statement appears in the hearings made public by the committee. It transpires, however, that much of the discussion in the committee following this utterance of Mr. Wilbur was deleted from the published hearings. In this discussion, according to participants, it was taken for granted that the "blue fleet advancing against Japan from the south and east" was intended to represent the American navy. Although Japan held these maneuvers far eastward of her shores there is widespread denunciation of the United States in Japan for planning to hold similar maneuvers in the waters of the Hawaiian Islands, an American possession, and to send the American Navy to Australia afterwards on a courtesy visit.

Both Secretary Wilbur and Admiran Eberle told the representatives the maneuvers and the proposed trip of the fleet to Australia would be of invaluable help to the navy in recruiting, training and working out problems at sea in addition to cementing friendships with the Australians.

"Mr. Secretary, there is another angle from which this question should be considered," said Representative Burton L. French, Republican, Idaho, "to wit, from the standpoint of the good will of the nations and the friendly feeling of other nations toward the United States. Will you discuss that question?"

"First," Secretary Wilbur replied, "let me say I have not conferred with the State Department in the matter. We have had inquiries from the

State Department as to whether we were going to Australia and our reply has been that it would depend on the action of Congress in making appropriations. There has been a great interest in the proposed trip manifested by the Australian people. We get that feeling through newspaper requests for information and through their commercial agent at New York, who has written me in the last few days asking for information."

That Japan has undertaken a large program of building cruisers and other auxiliary naval craft was shown by Mr. Wilbur in these comparisons of the construction in progress in the three nations in the 5-5-3 pact:

	Great Britain	United States	Japan
Aircraft carriers	3	2	2
Light cruisers	8	1	8
Mine layers	1	0	0
Flotilla leaders	2	0	0
Destroyers	2	0	9
Submarines	3	4	29

Mr. Wilbur started that although there had been no marked increases in the personnels of the active navies of the leading powers all of them "are proceeding with the execution of plans to increase the numbers and efficiency of their naval reserve contingents."

"The Japanese," he said, "recently have announced a policy which is intended to insure more economical administration of their naval shore establishments by concentrating work in the larger establishments and reducing to a more or less inactive status their smaller stations. It is to be noted, however, that the present Japanese budget carries an estimate of 8,084,335 yen for equipment for navy yards and stations and 2,993,148 yen for naval districts, of which latter sum 1,930,740 yen is believed to be intended for air stations.

Captain Henry H. Hough, director of intelligence, went into more detail before the committee regarding Japan's activities.

"Japan is proceeding with vigor to build up her fleet in types not limited by the treaties of Washington," he said. "Recent circumstances have caused some delay in her building program for fleet auxiliaries such as tenders. Japan is active in improving the naval air service.

"Japan is making every effort to provide adequate fuel oil reserves and to develop new sources of supply. There has been general comment on the increasing amount of war material and chemical shipments that have been going forward from Europe, especially Germany, to Japan.

It is considered that the underlying element in Japan's naval policy is her determination to dominate the East. Japan has a very large tonnage of light cruisers, first line, and fleet submarines, first line, under construction. The types now building are characterized by size, speed and radius of action. A study of recent types reveals that wherever possible additional speed and weight of broadside fire is aimed at over corresponding types abroad, even though in gaining these elements a certain sacrifice may have to be made in weight or protection.

"In regard to future programs of construction it is impossible to give detailed information. Provision for the Navy is made in such a manner as to make it extremely difficult to determine just what is in progress."

Captain Hough stated it was his understanding that increasing budgets ranging from 88,000,000 yen in 1924-25, to 96,000,000 yen in 1928-29 were being contemplated for the construction of non-capital ships.

Tokyo Press Assails Bancroft's Speeches

Tokio, December 14.—(By A. P.).—The two public speeches of Edgar A Bancroft, new United States Ambassador to Japan, one before the Pan-Pacific club on Saturday and the other before the Japan-American association on Friday, have drawn sharp comment from a section of the Tokio press.

The English edition of *Nichi Nichi* quoting the ambassador's plea that "Japan have faith in America and President Coolidge," asks: "What does he mean asking us an obvious impossibility? Has President Coolidge or the United States given Japan anything concrete to go on? None of them have given us encouragement to hope for return of the traditional friendship between the two nations. Can we under the circumstances comply with Ambassador Bancroft's request with pride or self-respect?"

Xhugai Shogyo Shimpo in the same vein says, "if the future can be judged by the past, Japan will have to hesitate in taking the ambassador at his words." Continuing it says:

"There seems to be a wide difference between the attitude of the United States and the policy pronounced by the ambassador. Nothing could be more inconsistent with the spirit of peace and friendship than the military policy America now is following such as expansion of her auxiliary fleet Pacific maneuvers."

Japanese to Abandon Port Arthur Navy Base

Washington *Star*, 22 November, 1924.—Will Strengthen Ominato in Light of Fleet Across Pacific by United States Aviators.—Tokio, November 4.—Dropping of Port Arthur as a naval base and the strengthening of the secondary base at Ominato, at the northern end of the main Island of Japan, are features of the navy's program of defense readjustment. This is inspired in part by the necessity for economy and partly by the desire to strengthen the national defense system on the northern front.

The importance of defense in this direction has been shown the Japanese naval authorities by the crossing of the Pacific by air by United States Army aviators.

UNITED STATES

The American Battleship Incident

The Engineer, 21 November, 1924.—A somewhat theatrical attempt to defeat the operation of the Naval Armaments Treaty was made last week by W. B. Shearer, an American writer who has distinguished himself by his persistent hostility to this compact. He sought an injunction in the Washington courts to restrain Mr. Wilbur, Secretary of the Navy, from destroying the battleship *Washington*—one of the ships condemned under the treaty—on the grounds that the agreement had not been completely ratified, and that Great Britain, in particular, had been remiss in fulfilling her obligations with respect to the scrapping of ships. As was to be expected, the Supreme Court of the District of Columbia dismissed the application. Mr. Wilbur declined to enter into the allegations made against Great Britain, which he termed "impertinent" and "immaterial." The *Washington* has, therefore, been towed out to sea, where it will be used as a target for aerial bombing attack and gun practice. This vessel was launched in 1921 as the fourth unit of the *Maryland* class, and if completed would have displaced 32,600 tons. As she embodies the most modern principles of defense, valuable experience should be derived from the tests to which she is being subjected. The firm action taken by Mr. Wilbur in this matter suggests that the Navy Department has no sympathy with the propaganda which is being waged against the limitation treaty in a section

of the American press. It is reported that Congress will shortly inquire into the question of relative naval strength, in order to clear up the confusion created in the public mind by the misstatement of self-styled "experts," who appear to have more political animus than technical knowledge.

Modernizing of Six Battleships Urged in Eberle Report

Washington *Post*, 27 November, 1924.—Reappropriation of the funds made available by the Sixty-seventh Congress for elevating the main batteries of the older battleships of the United States fleet was urgently recommended yesterday by Admiral R. E. Eberle, chief of naval operations, in his annual report to Secretary Wilbur.

The six older battleships also should be thoroughly modernized, he said, "if reliance upon these as ships of the first line of battle is to continue." Plans for the work have been prepared, the report added, against the hoped-for authority from Congress to proceed.

Depleted maintenance funds have caused the material condition of the fleet as a whole to remain not better than stationary, according to Admiral Eberle. He directed attention that much of the repair work in the last year had been accomplished by use of salvaged material, which now has been exhausted.

With reference to new construction, the report recommended passage of the bill which was approved by the House in the last session, but died in the Senate, and in addition the building of two mine layers and three cruiser submarines.

In stressing the statement that the fleet had remained virtually at a standstill in material condition through the year because of lack of funds to make complete repairs as the need arose, Admiral Eberle pointed out that with each year of advancing age the upkeep on any ship increases. The Department's efforts in the last year, he said, have been directed to determining "most urgent repairs" needed and to employ available funds upon that work. Virtually every ship of the Navy has been at the yards in the course of the year for repairs, he added, and in some cases expensive work in alterations was done.

Temporary repairs have been made to the boilers of the old battleships *Wyoming*, *Arkansas* and *Utah*, the report said, recalling that these ships, with the *Florida*, had been forced out of action because the condition of their boilers had become so bad that safety required reduction of standard pressure to avoid accidents and speed had fallen until they were unable to keep up with the fleet in maneuver operations.

"It has been clearly demonstrated," Admiral Eberle declared, "that the reboilering of these important units of the battle line is a military necessity."

Somewhat similar conditions prevailed among the cruisers, although the situation there was not so extensive as among the first line ships, Admiral Eberle said.

Admiral Eberle related that, to conserve available funds, the Hampton Roads submarine base had been decommissioned and the twenty-seven submarines out of commission there tranferred to the Philadelphia yard.

The report also disclosed that both old and new but completed battleships selected for scrapping under the Washington arms limitation treaty had been stripped to procure material and equipment needed to replace worn-out parts on the active battleships. With that supply no longer available, it said, the task of maintaining the active ships will be increasingly expensive.

In requesting that Congress be asked to put through the House bill Admiral Eberle pointed out it included authority to modernize the six older ships and urged that funds be made available.

This bill provided for alterations to the battleships *New York, Texas, Florida, Utah, Arkansas* and *Wyoming.*

Admiral Eberle's additional recommendations for the next fiscal year were as follows:

"That of the five submarines remaining unappropriated for but authorized under the act of 1916, funds be made available to begin the construction of two of these and of three as cruiser submarines.

"That in order to carry out the operations of the fleet based upon the naval operating plan for 1926 provision be made for 89,000 enlisted men, of which 2,300 are required to man two new airplane carriers and 600 are required for an increase in aviation crews.

"That the money appropriated by the Sixty-seventh Congress for increasing the range of turret guns of thirteen battleships be reappropriated for that purpose.

"Destroyer Power" of United States Mere Myth, Shearer Declares

Washington *Post,* 11 December, 1924.—The vaunted destroyer strength of the United States is a myth, W. B. Shearer, naval expert, of New York, who unsuccessfully sought to prevent the sinking of the battleship *Washington,* declared in a statement last night. Mr. Shearer, asserting he has the support of the National Security League and the Army and Navy Club, arrived here yesterday with a view to enlightening Congress as to the real condition of the nation's first line of defense.

The reputed destroyer strength has been pointed to by those politicians and civilians who would weaken the other naval defenses, Mr. Shearer said. Yet the destroyer strength does not exist, he says, as there is a lack of officers for the destroyers; a lack of experienced engineers and men for the destroyers, and a lack of funds to put the destroyers into commission.

Of a total of 309 destroyers only 109 are in commission, he stated, and six of these are used as mine layers. Explaining that it requires more men a ton for a destroyer than any other warcraft, and that they must be thoroughly trained in engineering, gunnery, torpedo work and electricity, Mr. Shearer said it would take 872 officers and 12,426 men to man the destroyers now in commission. Yet in the whole navy there are only about 1,290 officers who have had destroyer experiences, and only fifty per cent of these, or 645, are qualified with "real" experience in handling destroyers. Thus the destroyers in commission are short 227 officers "and a number of engineers."

To put into commission the 2000 destroyers laid up at Philadelphia and San Diego, according to Mr. Shearer, would require 1,600 trained officers and 24,000 enlisted men, "which we do not possess nor is any preparation or effort being made to right this serious condition."

The battle fleet is short of officer personnel and therefore it would be dangerous, he said, to draw from that force to man the destroyers. Destroyers should have eight officers and a crew of 114 in peace time and 125 in war time, he said, adding, "Those officers and men we do not possess."

Of the 200 destroyers "going to rust and ruin" less than twenty-one have been turned over to the coast guard for its rum and dope smuggling war, according to Mr. Shearer.

It requires about $20,000 to put a destroyer into commission and train its eight officers and 114 men, he said.

"The economist, pacifist and little-navy men have but one argument to keep the capital ship in rotten condition, to stop the building of light cruisers and fleet submarines," he continued. "That is the 309 destroyers which exist only in material, not personnel, which is the more important."

"To remedy this disaster," said Mr. Shearer, "it is necessary for the Secretary of the Navy to take advice from the active admirals and officers

that command ships at sea and the conditioning of ships at navy yards. Too long has the State Department dominated the Navy Department, which through that office has placed us third in the ratio 5-5-3, or as it really stands, 513-1, with the United States represented by the one. The Secretary of the Navy and Assistant Secretary know, or should know, our condition. Naval intelligence is at their elbow, and the public wants the facts, the truth, and this fault remedied."

There is too much "favoritism and politics in the Navy Department for the good service," he declared.

Slow Progress Reported On Airplane Carriers

Completion of the Navy's two big airplane carriers through conversion of the battle cruisers *Lexington* and *Saratoga*, as provided by the Washington naval limitation treaty will be delayed beyond July 1, 1926, in the opinion of Rear Admiral J. D. Beuret, chief of the bureau of construction and repair.

"The present rate of progress is not satisfactory," Admiral Beuret's annual report states, "and the bureaus concerned are investigating the steps necessary to avoid further delay."

Construction of the battle cruisers, authorized in 1916, was first suspended during the war to permit more urgent needs to be met, and was delayed again while the treaty was being framed and ratified. Conversion to aircarriers required complete redesigning of the ships above the waterline and many changes in the hulls. Even after plans for these changes had been worked out, the report says, a further delay arose and alterations in the flying deck were made necessary due to practical experience with the second line carrier *Langley*. Admiral Beuret makes no estimate of the probable completion date under present circumstances.

Speaking of efforts to operate the *S*-class submarines with the fleet in maneuvers, the report sets forth that "experience in maneuvers indicates that these vessels can not be considered as a satisfactory type of fleet submarines and can not be made so by any changes practicable on vessels of their limited displacement."

Strength of United States Fleet Discussed by Bywater

British Expert Declares American Navy's Superiority Over Japan In Battleships Is Overwhelming, Though Position In Cruisers Is Less Satisfactory. By Hector C. Bywater, Baltimore *Sun*, 11 December, 1924.—London, November 27.—What actually occurred during the recent experiments with the Battleship *Washington* off the Virginia Capes is left uncertain by message received here, but the vessel appears to have endured extraordinarily severe punishment by gunfire, bomb and depth charge before going to the bottom. Her sturdy resistance to this pounding of high explosives above and below water may surprise people who have been taught to believe that the biggest dreadnaught may be sunk outright by a single well-placed bomb or torpedo.

The fact is that modern battleships, and especially those of the class to which the *Washington* belonged, are extremely difficult to sink by any form of attack. Their predecessors of ten years ago were vulnerable to blows delivered under the water simply because this particular danger had not been taken sufficiently into account by the naval architects of that day. But as soon as the peril of torpedo, mine and bomb had been demonstrated by war experience elaborate measures were taken to defeat it, and nowhere was the problem tackled with greater success than in the United States.

In many current comparisons of naval strength the American battleships are given bad marks because they are not fitted with bulges, such as several

British ships possess; but the bulge, though very effective in its way, is not the only means of defeating underwater attack. If the detailed plans were available, for comparison it would be found, I think, that the ten newest American ships, from the *Pennsylvania* to the *West Virginia*, are not inferior in subsurface protection to the bulged ships of the British Navy, while they probably are superior in armor defense to vital parts.

As far back as 1910-11 American ship designers were paying close attention to the question of minimizing damage from shells and torpedoes. The battleships *New York* and *Texas*, began in 1911, had the then unusually great breadth of ninety-five and one-quarter feet and were more minutely bulkheaded below water than contemporary foreign ships, excepting perhaps, those of the German Navy. They carried, besides, thicker armor and more of it than the British vessels, the design of which was still influenced by Lord Fisher's theory of tactics, in which armor defense played a minor rôle.

Meanwhile important gunnery experiments had taken place with the old battleship *San Marcos*—ex-*Texas*. They showed thin or moderate armor to be virtually useless against heavy projectiles such as would be aimed at the battleship, and in consequence of the lesson the whole system of armoring American ships was revised. The new method was first applied to the *Oklahoma* and the *Nevada*, begun in 1912. Armor was dispensed with on the upper sides and concentrated in a waterline belt thick enough to keep out the biggest shell. The boiler uptakes, the main gun positions and other sensitive parts were also clothed in impenetrable mail. Thus, while enemy shells were free to enter in places where they could inflict no mortal injury, every part of the ship where projectiles were liable to cause such damage was proof against them. This was the so-called "all-or-nothing" principle of protection.

It has been adhered to, though improved upon, in all the latter ships down to the *West Virginia*. No one, of course, can positively forecast how a battleship will behave until she is tried in action, but many foreign critics are convinced that the newer ships of the American battle fleet are superior to all others in resistance to gunfire. Concurrently with this improvement in armor protection, steady progress has been made in developing underwater defense. While, therefore, the addition of bulges and horizontal armor to older ships—*Utah*, *Florida*, *Arkansas*, *Wyoming*, *New York* and *Texas*—is required to put them on a par with foreign types of later construction. It may be stated without fear of dissent that the American battle fleet as a whole is second to none in power of resistance to any and every known form of attack.

Some further comments are suggested by the revival, in certain American papers, of the legend of Japanese superiority in all the elements of naval fighting power. Unless it be argued that American officers and enlisted men are inferior in all respects to the Japanese Personnel, there is no visible basis for these yarns. Just because the four oldest United States dreadnaughts are laid up temporarily by boiler troubles, which can and certainly will be remedied in the near future, we are asked to believe that the American Fleet would stand no chances in battle with the Japanese forces. Here is a comparative table of the big guns mounted in the two fleets as they exist today:

	U. S. Fleet	*Japanese Fleet*
16-inch guns	24	16
14-inch guns	124	80
12-inch guns	44	0
Total big guns	192	96

In artillery of the heaviest caliber, 14-inch and 16-inch, the United States

has a preponderance of fifty-two and when the 12-inch pieces are added it is seen to have exactly twice as many big guns as the Japanese fleet. The notion that 12-inch guns are too feeble to count in present-day warfare is quite wrong. No German ship at Jutland mounted anything heavier, yet they contrived to sink three British dreadnaughts and to do a great deal of other damage. In this connection, it is worth noting, the 12-inch guns of the *Arkansas* and *Wyoming* can shoot up to 24,000 yards, thus outranging the lower velocity 14-inch guns in nine later American ships and even the 15-inch guns in British ships.

Having regard to the overwhelming superiority of the United States Fleet in number and weight of guns, the result of an encounter between it and the Japanese fleet would be a foregone conclusion—assuming a common standard of markmanship. Gun power is still the touchstone by which the fighting value of battleships is gauged, and the more closely this factor is analyzed, the more favorable does the American position become. Taking the 16-inch caliber first, the American and Japanese guns of this size probably are equal in hitting energy, for the greater weight of the Japanese 16-inch shell (about 2,300 pounds as against 2,100) is compensated by the higher muzzle velocity of the American gun.

On turning to the 14-inch batteries, with which most of the ships in both fleets are armed, important differences become manifest. Of the American 14-inch guns, no less than sixty are of the 50-caliber model, the other sixty-four being of 45 calibers. This addition of five calibers to the length signifies, of course, a considerable increase in ballistic efficiency, the longer gun being able to shoot farther, hit harder and make accurate practice. Indeed, the 14-inch 50-caliber is one of the most formidable guns now afloat. America's 60 weapons of this kind are distributed among five ships. Japan, on the other hand, has not a single gun of corresponding type. Her eighty 14-inch pieces have a uniform length of 45 calibers and are, therefore, less powerful than the longer American guns. The United States Fleet's advantage in gun power is seen to be even more pronounced than a numerical comparison indicates.

Age of material is another important point to be noted in appraising the relative power of the two ships. While America has four ships older than any Japanese unit, she also has eight which were begun less than ten years ago, whereas Japan has but four of such modern construction. Since the World War America has completed six battleships, Japan only two.

The foregoing comparisons refer only to battleships and are put forward to refute the statement that even in this class of vessel the United States has fallen behind Japan. That is demonstrably false. The 5-3 ratio is being well maintained so far as heavy ships are concerned. The cruiser possibly, however, is much less satisfactory. Even if Congress, should appropriate money for the ten cruisers now projected, there will remain a deficit of 109,965 tons to be made up before the United States cruiser fleet conforms to the 5-3 ratio with Japan.

A word, in conclusion, on gun elevation. It has been persistently reported that France has lengthened the range of the turret guns in her six dreadnaughts by altering their mounts to permit of a higher angle of fire. J. B. Gautreau, a French naval critic, writes in this week's *Naval and Military Record* about the three battleships of the *Courbet* class, and remarks, in passing, that "their range has been increased to over 24,000 meters."

If he is rightly informed, the work has evidently been done since the naval treaty was signed, though perhaps before France herself had ratified it, but if one signatory has made this change without exposing itself to protest, the others might not unreasonably claim the right to do likewise. It certainly is desirable from every point of view that we should know positively whether France has or has not altered the gun mounts of her battleships in the post-treaty period.

Improved Type of 8-Inch Guns for New Cruisers

Development Is Revealed by Secretary Wilbur In Urging Construction of 10,000-Ton Vessels. Little Is Known Definitely As To Design for Post-Treaty Warship Intended To Restore 5-5-3 Naval Ratio. Baltimore *Sun*, 11 December, 1924.—Washington, December 10.—Stress laid by Secretary Wilbur on the immediate need for construction of 10,000-ton type cruisers to bring the navy up to 5-5-3 ratio equivalent with other treaty powers attracted attention today to the probable size and power of these post-treaty craft as planned by American navy designers.

Details of the plans have not been divulged by the department as yet, although a provision for laying down eight of these ships is contained in the pending naval increase bill and there is reason to believe that the General Board has recommended increasing this number to a dozen vessels.

The Naval Secretary did reveal one highly significant detail in his statement Monday to the House subcommittee. He disclosed that navy ordnance experts have already developed a new type of 8-inch rifle, that being the limit of size of guns for auxiliary craft set by the treaty.

"By increasing the initial velocity of the 8-inch shell the striking power can be and has been greatly increased," he said.

Increased velocity could be obtained either by improved explosives or increased length of guns. Since the Navy adopted a 51-caliber, 6-inch gun for the only modern cruisers now in commission—the ten light vessels of 7,500 tons, it appears probable that the 8-inch guns also have increased in length to increase range and hitting power.

A 51-caliber, 8-inch gun would be a weapon thirty-eight feet in length, or almost as long as the one-time 13-inch monsters of that historic old warrior, the *Oregon*, queen of the Navy in her day. Those were 35-caliber guns.

The number of guns each of the 10,000 tonners is to mount has has not been disclosed. Intimations have come from abroad, however, that the British post-treaty cruisers will carry eight or ten 8-inch guns, or possibly nine, mounted in trios under light housing to protect them from the rush of water in a seaway so that they could fight even under such conditions.

The size of the ships presumably would permit such armament without radical loss in the high speed necessary for the carrying out of their mission. It is to be expected that the plans for both services contemplate maximum gun power consistent with high speed and fuel capacity for 10,000 or 12,000 miles without refueling.

Recent American ships, even to the first 2,000-ton fleet submarine *V-1*, have been equipped with electric drive to give them maneuverability obtainable through having full power available in reverse. It would cause little surprise if the American post-treaty cruisers also proved to be planned for electric propulsion when the details are revealed, and it seems certain they will be intended to approach a maximum speed of 35 knots and to be able to sustain a fairly high speed even in a heavy sea.

What the advantage would be to a navy possessing such ships as these against an opponent with only destroyers equipped with 4-inch guns or old cruisers was pictured in a statement issued tonight by the Navy League:

"Post-conference light cruisers are 10,000-ton ships mounting eight or ten 8-inch guns," the statement said. "Their speeds are practically equal to modern 35-knot destroyers, with the cruisers at an advantage in a heavy sea.

"The light cruisers could drive in destroyers in a fleet action and thus prevent them from performing scouting duties; in commerce warfare the cruiser could wipe the destroyers from the sea, ordinarily, without risk to itself.

"It should be remembered that a light cruiser of today is vastly superior

to the predreadnaught battleship of twenty years ago. Its guns have longer range and greater striking power. Its speed is almost double that of old battleships. It could destroy either battleships or cruisers of two decades ago without subjecting itself to risk."

The league statement cited the battle of Coronel, when Admiral Craddock's British squadron of old ships was destroyed by a German force of equal tonnage, but in modern ships, almost without injury to the German craft; the lesson being duplicated at the Falkland Islands fight subsequently, when a British battle cruiser squadron rounded up the Germans and hammered them to pieces while standing out of range of the German guns.

"Obsolescence of warships is no theory," the statement declared. "It was clearly demonstrated in the World War."

The statement added that the American Navy had built or had in process of construction only the 7,500-tonners in cruiser strength, "which may be said to have military value," all others being so old as to be obsolete.

Navy Building Bill Voted by Senate

Washington *Star*, 11 December, 1924.—The Senate approved today the naval construction bill authorizing a program expected to cost $110,000,000.

The bill provides for construction of eight light cruisers, six gunboats to be used on the Yangste River in China and the conversion of six battleships from coal to oil burners. The measure was passed by the House and Senate last session, but was held up by a motion by Senator King, Democrat, Utah, to reconsider which, was defeated today.

Appropriations for the program will be asked in the navy supply bill for next fiscal year, Chairman Hale of the naval committee announced.

Senator King reiterated his opposition today, demanding again "an exhaustive and comprehensive investigation of the conduct of the Navy Department." He declared the Department "inefficient and not up to the standards expected by the American people."

"There is a feeling," he continued, "that there is inefficiency in the personnel of the Navy. In my mind, there has been a distinct deterioration in the Navy in the last four years."

He favored consideration by the Navy of the air and submarine problems, and served notice that when the Navy supply measure came up he would ask further inquiry into navy conditions.

Chairman Hale said Senator King's resolution for a naval inquiry "would receive every consideration when it came before the committee."

Ship Improvement to Begin as Soon as Bill is Signed

Washington *Post*, 13 December, 1924.—Modernization of the *Florida*, one of the Navy's six coal-burning battleships, will be begun as soon as President Coolidge signs the bill passed Thursday by the Senate, authorizing the improvement of certain ships and building of others.

This was announced by Secretary of the Navy Wilbur yesterday when he also declared efforts would be made to have Congress make available this session part of the $110,000,000 it authorized in this bill.

The modernization of the *Florida* will be the first definite step in the department's program to bring the navy up to the 5-5-3 ratio. It will mean the first of the six ships, generally considered as being most in need of improvement, will have been put in condition to participate in modern naval warfare.

The program of modernization applied directly to thirteen battleships, which are divided into two groups. The first group is comprised of six ships which, to be modern, must have their coal-burning boilers replaced by oil burners; their outer, underwater sides coated with "bulges" or

"blisters," which afford added protection against torpedo attack, and other deck armament reinforced to afford protection against aerial bombs. In this group are the battleships *Florida, Utah, New York, Texas, Arkansas,* and *Wyoming.*

The second group, which comprises the battleships *New Mexico, Nevada, Pennsylvania, Arizona, Idaho, Mississippi,* and *Oklahoma,* is comprised of those ships which, while they are oil burners, are not considered modern because they do not have "blistered" sides nor reinforced deck armor.

Secretary Wilbur yesterday said the Navy Department would not ask for appropriations for the modernization of the second group of ships this year.

Although authorization has been made by Congress for these improvements to ships, their actual accomplishment depends upon the appropriations which Congress has yet to make. However, it is expected the appropriations will be stretched out over a period of time and that improvements will be made to only one ship at a time. In all, approximately $19,000,000 is authorized for the improvements to the six ships.

The U. S. S. *Florida* is at present at the Boston navy yard. It was sent there to have its coal-burning boilers overhauled when it experienced difficulty in keeping up with the remainder of the fleet. The Navy Department feels that rather than repair the present boilers and later replace them it will better to replace the coal-burning boilers with oil burners and make the other needed improvements at the same time.

There is no intimation as to when the work on the other ships will be started. This depends largely upon when the money is appropriated and made available. The *Florida* will be modernized without awaiting the appropriation, but this procedure will not be followed in the cases of the other ships.

In effecting these improvements it will be the policy of the Navy Department not to allow the work to interfere with the maneuvers of the fleet, and it was said yesterday that the modernization of these battleships will not be allowed to interfere with the maneuvers of the combined fleet off the Hawaiian Islands in the spring.

Favors Expert Inquiry on Gun Elevation Issue

English Naval Expert Suggests Small Commission, Representing Washington Treaty Powers, Settle Controversy Between U. S. and Great Britain. By Hector C. Bywater, Baltimore *Sun,* 18 December, 1924.—London, November 27.—American discussion on the problem of naval strength are at last beginning to attract notice on this side. Scant attention has been paid, so far, to the question of relative sea power as between the United States and Great Britain, owing to a widespread belief that the whole issue was settled for at least ten years by the Washington treaty. A ripple of interest was caused recently by the news that Downing Street had notified Washington and Tokio that changes in gunmounts or boilers of capital ships would, in the opinion of the British Government, constitute an infringement of the treaty.

It is plain, however, that more will be heard of this subject in the near future, for its important bearing on the broader question of Anglo-American relations is now perceived. The *Times* recently devoted over a column to the battleships position, with special reference to the abortive attempt to save the U. S. S. *Washington* from destruction. It mentions a book written by Capain Dudley Knox, U. S. N., entitled *The Eclipse of American Sea Power;* also a speech made by Mr. Denby when he was Secretary of the Navy, to the effect that people in the future will wonder how it came about that "the American nation ever thought of crippling this great right arm of diplomacy, this great protection of our people everywhere. The action

brought to hold up the scrapping of the U. S. S. *Washington*, though unsuccessful, said the *Times*, "is but the latest outcome of the propaganda along this line."

That Britain got by far the best of the bargain at the Washington parley is, I know, an article of faith with many American naval officers. They are persuaded that their country was duped into renouncing the prize of sea supremacy which was almost within its grasp.

Superficially, the evidence on this point may look convincing. The thirteen ships scrapped would, when completed, have put the American battle fleet first in tonnage and gun power. There is, however, a tendency to overlook Japan's program, which consisted of sixteen ships larger and even more formidable than the American vessels. This scheme was to have materialized by 1927-28, so that, to insure the maintenance of its temporary lead, the United States would have had to build many additional dreadnaughts, not to speak of the cruisers and other auxiliaries that make up a well-balanced fleet.

And is it to be supposed that Britain would all this time have stood idle, watching her fleet decline to second or third rank? Far from it. Already in 1921 she had begun to construct four post-Jutland ships which are said to have surpassed in fighting strength the largest American ships then in hand. Despite her financial burdens, it is unthinkable that she would have let the trident slip from her hands without making a strenuous effort to recover it.

If the American people desired to gain and keep the primacy of the ocean, they would have had to go far beyond the program of August, 1916. Appropriations for the navy must soon have reached a staggering total, for under the spur of foreign rivalry ships would have grown steadily in number, size and cost, compelling the provision of new docks and harbor works, besides the building of numerous auxiliary vessels and a progressive increase in personnel. Does anyone seriously think the American nation would have stood for this riot of expenditure, not merely for one year or two, but indefinitely? If it would not, then all the talk about America having been tricked out of her naval supremacy at the Washington Conference is meaningless and vain.

As is well known, 18-inch guns were built for the British Navy during the World War. Japan also was making an experimental weapon of this caliber in 1921. Had naval limitation not supervened, it is quite on the cards that future British and Japanese dreadnaughts would have carried 18-inch guns, thus rendering the American battle fleet obsolete. To sustain the argument of American critics that retention of the ships condemned by the treaty would have given the United States Navy command of the sea, it is necessary to assume that neither Britain nor Japan intended to build post-Jutland ships. But, as we have seen, Japan was actively engaged in that very task, while Britain had already begun four battle cruisers of unexampled size and power.

The real sacrifice made by America was not the scrapping of her battleships but the renunciation of Manila Bay and Guam as first-class fleet stations. The tremendous significance of Article 19 has often been stressed. It means that America, if she was ever challenged by Japan, would fight under a fatal handicap, for, deprived of a base west of Hawaii, her fleet could not operate in the Western Pacific and would, therefore, be unable to defend American oversea possessions. Still, the naval treaty is an accomplished fact, and short of denouncing it *in toto* each signatory power is bound in honor to observe its provisions.

The gun-range question is another matter. In his "Navy Day" message Curtis D. Wilbur announced that his department is "asking Congress to authorize the necessary changes to permit this (increased) gun elevation so that our fleet may have a maximum efficiency at long ranges." This request

is presumably incorporated in the navy bill which goes before Congress next month. It had previously been refused, but the conversion of battleship boilers from coal to oil fuel was approved in the last session and probably will be reaffirmed in the next. President Coolidge, it is now recalled, intimated last August that he was averse to any increase in gun elevation, not because of the British protest, but as a matter of policy. He feared that such a measure would encourage foreign naval competition at a time when Europe needs all its wealth for post-war reconstruction.

British observers unacquainted with the political system on your side are puzzled by the Navy Department's action in pressing its case for increased gun elevation against the wishes of the Executive, but they are more concerned about the charges of bad faith repeatedly preferred against this country by American naval critics. These persistent attacks are beginning to undermine public faith in the value of the naval treaty as an instrument of good will. Previous to the Washington Conference, we are reminded, no disputes arose between the United States and Great Britain on the delicate question of fighting power at sea. Now they are of almost monthly occurrence. If this sort of thing goes on, the whole principle of regulating armaments by negotiation will fall into discredit. Even now the idea of holding a second arms parley is viewed somewhat coldly in London.

Whether a signatory power is entitled, under the treaty, to increase the elevation of its battleship guns is a question on which the experts of America and Britain have apparently agreed to differ. It is a technical point rather than a legal one, for the clause dealing with this subject is ambiguously phrased. There is, moreover, a discrepancy between the English and the French version, for whereas the former forbids alterations "in caliber, number or general type of mounting of main armament," the French version rules out changes in the "caliber and number of guns in the main armament as well as all changes in its general plan of installation." Would not the rational way out of the difficulty be to summon a small committee of officers from the five navies concerned and leave the decision to them?

The moral argument in America's favor is that the treaty was designed to equalize the British and American battle fleets in all respects, in gun power (which implies gun range) no less than in tonnage. The practical objection to the American claim is that its concession might make the present inequality in range still more pronounced, since if all American turret guns were given an elevation of thirty degrees the United States Fleet as a unit would be able to shoot farther than the British, but this difficulty could be met by determining beforehand the permissible degrees of elevation. It is here that the committee of practical naval men would be so useful.

When uninstructed civilians plunge into the controversy we are liable to hear some remarkable statements, such as the following: "Great Britain has been smarter than the United States all along the line. By flooding the 'blisters' with which fifteen of their ships are equipped the British can get a range of 30,000 yards. We have only five ships that can fire at that range." The idea of ships in action with an enemy fleet being heeled over to give their guns greater range—incidentally exposing their unarmored bottoms to return shell fire—will excite hilarity among naval men, who do not need to be told that American ships could be similarly heeled over by flooding their wing compartments if it were worth while. It will be interesting to hear what other cards perfidious Albion is hiding up her sleeve.

Commander of Majestic Leaves on Last Voyage

Sir Bertram Fox Hayes Bids Farewell to Friends at New York as He Retires. New York, December 17 (Special.—Sir Bertram Fox Hayes, commander of the White Star liner *Majestic*, bade farewell to a group of friends today as the vessel sailed on her last voyage under his control.

When he berths the liner at Southampton he will be retired from service after twenty-five years as a commander. He has had forty-four years of sea service, thirty-six of which were spent in the employ of the White Star Line. He has steered the *Majestic* on thirty-nine trips across the Atlantic.

Sir Bertram will remain in an advisory capacity in England.

George R. Metcalf, recently commander of the *Homeric*, will succeed Sir Bertram in command of the *Majestic*.

Says Tokio Gave Out Unfair Naval Data

By K. K. Kawakami, Baltimore *Sun*, 20 December, 1924.—Washington, December 15.—In publishing, or authorizing American correspondents at Tokio to publish, naval statistics which are highly misleading and unfair to the American Navy the naval authorities of Japan have not only made a gross mistake but violated the canon of *Bushido*, which, whatever it may mean, they are fond of professing. They have degraded themselves to the level of the "professional patriots," who are found in any country, making business of lamenting the alleged weakness of their own navy and railing at the financed greatness of other navies.

These misleading Japanese figures, published, as they were, almost synchronously with the sensible pronouncements by Admiral Takarabe, Minister of the Navy, and Admiral Okada, chief commander of the joint squadron, seem all the more unfortunate. Takarabe expressed himself in favor of another armament conference, and declared that "the best bulwark of peace would be the impossibility of aggression," and that "this should be made dependent not only upon human will but on the technical impossibility of practical warfare." Okada said at about the same time that the American Navy was at liberty to carry out maneuvers as it saw fit, and that it was no business of Japan's to criticize such maneuvers. What a pity that these statesmanlike statements have been marred by the issuance of the figures which savor too much of the tricks of the trade!

It does not take the Navy League or the National Security League to discover flaws in these Japanese figuers. The writer is no naval expert, but was convinced at a glance that the figures were prepared particularly for the consumption of a gullible or uninformed public in America—for the purpose of lulling the American people into a sense of security. One is loath to admit that the publication of such ill-conceived figures was authorized by the Japanese Minister of the Navy. In all probability they were prepared and given out by an expert or experts of the Navy Department who, like their fellows in foreign countries, knew how to juggle with figures. This "expert" practice is nothing new nor peculiar to any single country. It has been employed by advocates of big navies in all countries.

The most obvious flaw in the Japanese statistics is found in the figures for the relative cruiser strength of the American, British and Japanese navies. They allow America thirty-three cruisers, totaling 253,221 tons; Britain fifty-one, totaling 271,320 tons, and Japan twenty-nine, totaling 175,190 tons. Of course, these figures are not fictitious, but they include, in the case of the American Navy, cruisers which are admittedly obsolete. In estimating the strength of a navy it is essential to take into account the ages of the component ships. As the writer understands, cruisers older than seventeen years and destroyers and submarines older than twelve years are considered obsolete by naval authorities of all countries. It seems that the Japanese figures under review include the American fleet cruisers older than seventeen years, but exclude similar ships from the British and Japanese fleets. This is obviously unfair to the American Navy.

As a matter of fact, Rear Admiral Nomura, one of the Japanese experts at the Washington Conference, gave out only half a year ago what appeared

to be more accurate and equitable figures, eliminating from all navies ships above the aforesaid age limits. His figures credit the American Navy with only twenty-three cruisers, that is, ten ships less than the number given in the new Japanese statement. The present ratio, as estimated by him on this basis, is as follows:

	Cruisers	*Tonnage*	*Ratio*
United States	23	182,625	1.00
Britain	50	259,670	1.42
Japan	25	148,170	0.81

Everybody knows that the American Navy is weak in respect of cruisers. To remedy this weakness has been one of the main purposes of the agitation which has been going on for a year or more. Congress at the last session authorized the construction of eight cruisers of 10,000 tons each, but failed to appropriate the necessary fund. In all probability this fund will be provided at the present session.

Meanwhile Great Britain is going to add to her fleet five cruisers of 10,000 tons each, and three of 8,000 tons each; Japan will build four cruisers of 10,000 tons each and four, of 7,000 tons each. If, in the meantime, the United States builds no cruiser, the British and the Japanese fleet of cruisers will, by the end of 1929, have a sharp preponderance over the American fleet. It is, therefore, but reasonable that Mr. Shearer and the Navy League should be alarmed. If their methods of campaign seem a little too sensational, their motives are right, and both Britain and Japan should view with sympathy their honest endeavor to prevent the American Navy from lagging behind the other leading navies.

Even if Congress authorizes and provides for the building of eight cruisers of 10,000 tons each, the cruiser strength of the American Navy will by the end of 1929 be only half that of the British Navy and a trifle smaller than that of the Japanese Navy. Eliminating ships over seventeen years old, the relative cruiser figures for the three navies will be something like the following:

	Number	*Tonnage*
United States	18	155,000
Britain	58	373,830
Japan	28	171,055

In respect of destroyers the American Navy is by far the most powerful. The present ratio seems to be something like 1.00 for America, 0.64 for Britain and 0.21 for Japan. This ratio will by 1929 change only slightly in favor of Britain and Japan.

In the matter of submarines, too, the American Navy is apparently superior to the British and Japanese navies. The figures just published by the Japanese Navy do not include submarine figures, because, it says, data for foreign navies in this respect are lacking; but Rear Admiral Nomura's figures credit America with 133 submarines, totaling 77,322 tons; Britain with sixty-eight, aggregating 58,540 tons, and Japan with thirty-seven, totaling 24,377 tons. The ratio based upon these figures is 1.00 for America, 0.76 for Britain and 0.31 for Japan. The figures exclude all submarines over twelve years old. If the powers will follow the respective plans already fixed, Japan will by the end of 1929 have sixty-seven submarines, with a total tonnage of 68,536, while Britain will have increased her submarines to seventy-six, aggregating 68,370 tons. In the meantime the number of American submarines will decrease to 121, but their total tonnage will increase to 84,900, because smaller submarines will be replaced by larger ones of the new type. The ratio by 1929 will be 1.00 for America to 0.81 each for Britain and Japan.

These estimates made by Rear Admiral Nomura may be open to criticism.

American advocates of the big navy will contend that while the number and aggregate tonnage quoted by Admiral Nomura for American submarines may be fairly accurate, they do not take into consideration that many of American submarines are of the smaller type than the British and Japanese submersibles and are incapable of long-radius operation. That is a point which the experts must settle. But is it not strange that while American experts are deploring the weakness of their submarine fleet, the Japanese experts are sighing the same sighs, grieving that their submarines are utterly inadequate to defend Japan's long coast lines, stretching from the Kuriles Islands to Formosa, a distance of 2,500 miles. If the question of armament were left entirely in the hands of experts dissociated from statesmen, one is inclined to doubt that the world would ever arrive at a harmonious agreement on the limitation of armament.

There is no denying that the Pacific situation today is far from what it should be. At such a critical time every responsible man on both sides of the water should think more than twice before he acts or speaks on the international situation. Viewed in that light, the coming Pacific maneuvers of the American Navy are ill-timed. Granted that the Japanese are mistaken and foolish in getting excited about them, the fact remains that the maneuvers are calculated to be misunderstood on the other side. Had they taken place a year ago no Japanese would have said a word against them. Indeed, they would have passed unnoticed, but the adoption of the exclusion law, coupled with the spectacular propaganda carried on by powerful American organizations for "a Navy second to none," has awakened a mingled feeling of fear and suspicion in many a Japanese bosom.

In the midst of this propaganda Secretary Wilbur went over to the Pacific Coast and told the Americans there, as well as the Japanese across the water, that "there is nothing so cooling to a hot temper as a piece of cold steel." Many a Japanese interpreted this to mean: "If the Japanese do not like the way we are running our affairs let them come and fight."

But the plans for the coming maneuvers have already gone too far to permit of any alteration. The American Navy could not and would not change them after thoughtless people in Japan held meetings and passed resolutions of protest. The only sensible attitude the Japanese should take is the attitude assumed by Admiral Takarabe, Minister of the Navy, and Admiral Okada, commander of the joint squadron, who declared that the Japanese Navy was not at all concerned with the American maneuvers.

$101,400,000 Naval Program Is Urged

Baltimore *Sun*, 20 December, 1924.—Washington, December 19.— Coincident with the passage by the House late today of the naval supply bill, carrying nearly $300,000,000 for activities already authorized, Representative Britten, of Illinois, ranking Republican on the House Naval Committee, introduced a measure to appropriate $101,400,000 for new naval construction.

His measure would authorize the building of four scout cruisers, costing $11,100,000 each, and one floating drydock, to cost $7,500,000; the elevation of the turret guns of thirteen battleships, at an aggregate cost of $6,500,000, and would increase the limit of cost of the two airplane carriers, *Lexington* and *Saratoga*, now building, from $23,000,000 to $33,000,000.

Mr. Britten's bill was automatically referred to the Naval Committee and he said hearings which would be held on the proposal would serve the purpose of drawing from Navy Department officials the information as to the exact condition of the American Navy he has been seeking to bring out through a Congressional investigation.

On the Senate side of the Capitol the Naval Committee shelved the reso-

lution of Senator King, Democrat, Utah, proposing a searching inquiry into the status of the navy, but agreed to seek from the Navy Department data which will show whether the United States is keeping up its end of the arms conference 5-5-3 ratio.

Senator Hale said it was impossible to estimate how long it would take to collect this data.

Commenting on the bill and its purposes, Mr. Britten said it was introduced "in accordance with a statement made by the Secretary of the Navy to the Committee on Appropriations of the House indicating that additional ships and authorizations were necessary to bring our navy up to the 5-5-3 ratio promoted by the Washington arms conference.

"Unless another conference is called for the limitation of all naval craft," continued Mr. Britten, "it will be necessary for us to meet the desires and the intention of the former conference and to maintain our navy at its very highest efficiency for the number of ships in the service, and the quicker we do this the better.

"If England and Japan supersede us in fast cruisers, submarines, aircraft carriers and naval aviation, Congress should immediately take such steps as are necessary to make our navy equal to any other on earth not only in cold steel but in having superior officers and men and make the nation safe in time of an emergency.

"I personally cannot see a threatening speck on our peaceful horizon, but that is no reason why we should go unprepared or unprotected against any future emergency."

In rushing the naval appropriation bill to a vote, the House sent it to the Senate a day ahead of the schedule of leaders calling for passage of three of the annual supply measures before the Christmas recess, which begins tomorrow. As approved, the bill carried only one amendment, by Chairman Butler of the naval committee, to appropriate $35,000 for the construction of fuel oil storage at the Pensacola, Florida, naval air station.

As sent to the Senate, the bill provides for maintenance of the navy during the coming fiscal year at its present strength of 86,000 enlisted men and for a slight increase in the officer personnel, but would decrease the Marine Corps from 19,500 to 18,000 men.

A total of $14,800,000 was carried for naval aviation and funds are provided to finish all naval vessels under construction except the aircraft carriers, *Lexington* and *Saratoga*, and three fleet submarines.

Maneuver Plan Called Provocative of War

From *The Sun* Bureau.—Washington, December 19.—The contemplated maneuvers of the American Fleet in Hawaiian waters next year provoked spirited opposition in the House today when Representative Huddleston, Democrat, of Alabama, declared the plan was provocative of war, tactless and stupid.

Mr. Huddleston made his attack when the section of the navy appropriation bill providing funds for next year's practice of the fleet was reached. He was joined by Representative Wingo, Democrat, of Arkansas, who urged that both newspapers and members of Congress "keep their mouths shut" and allow the President and the Secretary of State to conduct the foreign relations of the country.

Representative Britten, of Illinois, ranking majority member of the Naval Affairs Committee, defended the maneuvers and declared that Japan can take no exception to their being held in Hawaiian waters since Japan had conducted her own maneuvers in the Pacific, with the view of possible hostilities with the United States. Mr. Britten yesterday introduced a resolution authorizing the President to call a conference

of the white peoples bordering on the Pacific to discuss matters of their mutual interest.

No attention was given to the fact that the navy contemplates sending the fleet on a visit of courtesy to Australia after the maneuvers are completed, although this is realized as an important international gesture.

"I think it must be clear to students of international relations that our present relations with Japan are not satisfactory," Mr. Huddleston said. "Great feeling was excited in Japan by the adoption of our immigration law. That feeling has been played upon and fomented by Japanese politicians for partisan purposes, until public opinion in Japan has been moved to a very considerable extent. Japanese public opinion, as a whole, is highly irritated, and in a time like this it is of the greatest importance that those who speak for America and who really desire that our country's peace should be preserved should be circumspect in their actions and in their deeds.

"In such a situation the decision to hold our naval maneuvers off Hawaii is characterized by the strangest ineptitude and tactics.

"It seems strange that anyone who knows enough to have produced a decision to hold the maneuvers there did not know enough of international affairs to recognize the impropriety of it. Nobody in the United States wants war with Japan. Yet in the face of that situation we have transferred the greatest strength of the fleet to the Pacific shores. It has as its base of operations such points as would naturally be chosen if it were regarded that a war with Japan was possible. The Japanese know that the only possible imaginary enemy that we could have would be the Japanese fleet, and that Japan is the imaginary enemy against which we are defending Hawaii."

Mr. Huddleston said no action within the last century has been so provocative, and advised against public men playing the part in this country which has been played by politicians in Japan.

Mr. Britten said the United States will not recognize the right of any nation to say where we shall hold our maneuvers.

"It is just exactly that jingoistic and bombastic spirit which brings on war," Mr. Huddleston retorted. He insisted this country is too strong to render it necessary that we assert our rights at all times.

Representative Rathbone, of Illinois, asked if Japan had not recently held her maneuvers at the outposts of her country.

"If the Japanese have been guilty of tactlessness it does not warrant us matching folly with folly," Mr. Huddleston replied.

Representative Wingate brought the debate to a close.

"We may not agree," he said, "with the man in the White House or with the Secretary of State, but I think that every man who has a boy and does not want to see him used as cannon fodder, and every man who has a due regard for the dignity of nations, hopes all these gentlemen and all these newspapers will keep their mouths shut about the Japanese question."

Mr. Wingo said he was perfectly willing to trust the President and the Secretary of State to do the right thing in handling the foreign relations of the country.

U. S. Navy to Welcome Japanese Midshipmen

Will Extend Full Courtesies When Three Cruisers Reach American Waters.—Washington, December 19.—Full courtesies will be extended by the Navy Department during the visit to American waters of the trio of Japanese cruisers that are carrying 300 Japanese midshipmen on their annual practice cruise.

When the Japanese ships reach San Francisco in January they will be met by Vice Admiral Henry A. Wiley on his flagship, the battleship

West Virginia, with two other ships of his division, the *Colorado* and *Maryland.* Special orders have been dispatched designating Admiral Wiley the Department's representative for the reception.

The Japanese training fleet is now en route from Honolulu to Balboa, where similar naval courtesies will be extended by the commander of the Canal Zone naval district.

Denies Japan Opposed Visit of American Fleet

Tokio, December 19.—The Foreign Office tonight issued a *communique* denying the correctness of newspaper versions printed widely this morning of Premier Kato's speech of last night at a political dinner.

Premier Kato had been quoted as saying that the United States had intimated it might send the American Navy to Yokohoma after the Hawaiian maneuvers, but that the Japanese Government had "declined the offer with thanks."

"The report (of the Premier's speech) is a product of some grave misunderstanding, for this government could in no wise decline a proposal that never was made," the *communique* said.

MERCHANT MARINE

Ship Board Report Urges Congress to Aid Merchant Fleet

Washington *Post,* 11 December, 1924.—A "strong reaffirmation" by Congress that the United States is determined to maintain permanently a merchant marine "commensurate with the needs of the country from the standpoint of commerce and national defense" was recommended yesterday in the annual report of the Shipping Board.

Such a declaration of policy was declared by the board to be desirable despite improvements in the American shipping situation brought about in the last year by route consolidations, stabilization of rates and other measures.

The board also recommended a joint committee be created, composed of representatives of the board and the Interstate Commerce Commission, to coordinate rail and water transportation; prohibition by law of preferential arrangements between American railroads and foreign shipping lines, and exemption from taxation of all earnings from American shipping in foreign trade. The report did not go into detail, however, regarding any of these recommendations.

Discussing the accomplishments of the year, the board declared recently effected consolidations of general ocean trade routes, involving decreases in the number of government freight and passenger ships and in the number of operating agents, were said in the report to have reduced overlapping and duplicate services and to have cut expenses, making it possible at the same time to obtain a greater flexibility with the tonnage in service.

An examination of 1,021 freight and passenger tarriffs filed in the year led to a conclusion by the board that there has been a "general stabilization in the rates, fares and charges of common carriers by water in interstate commerce."

Inauguration in June of a system for training inexperienced American-born boys who seek employment on ships had "assisted tremendously in the board's policy of Americanization" of crews on government vessels, the report declared. In the year, 383 officers and 84,227 unlicensed men were placed on American vessels, and of these totals, the board points out, 77.5 per cent were American citizens. This, however, was a decrease in total placements of 17,290 men from the year 1923, and also a decrease

of 3.9 per cent in the percentage of Americans employed. The reduction was attributed to the lower average number of American vessels in active service in the year, and the decline in the percentage of competent Americans available for sea service was said to have been due principally to improved economic conditions ashore.

"Another important factor," the report continued, "was the lack of a suitable rating in the vessel's crew which could be filled with inexperienced young Americans, eventually to replace those leaving the sea."

"The door has been opened to American boys who have no sea training by substituting two American-born deck hands for one ordinary seaman at a nominal wage, and without material increase in operating cost. No report of actual results is available for the fiscal year, but it can be said that it will assist tremendously in the board's policy of Americanization."

In a discussion of section 28 of the merchant marine act, designed to afford preferential railroad rates on cargoes to be shipped in American vessels, but which was suspended, the board asserted that application of the section would have given American ships the advantage of the patronage of exporters and importers in preference to their patronage of foreign tonnage.

The board's list of recommendations follows in full:

"Codification of the navigation laws should be pushed to an early conclusion and the necessary steps taken to simplify them and remove any conflict.

"The United States should pay a naval reserve retainer to American citizens during such times as they are serving on board American ships engaged in foreign trade, such retainer to be conditioned upon their being willing to serve in the naval forces in time of war.

"All earnings from American shipping in foreign trade and all profits derived from the sale of American vessels should be exempt from taxation, provided the amount of tax exempted is expended in new vessels constructed in American shipyards.

"All transportation of an official nature which is paid for by the government, whether of property or person, should be done by American vessels, unless the exigencies of the public service clearly require otherwise. The military departments especially should secure as much as possible of their transportation from the commercial marine, and they should be authorized to contract for a period up to ten years for such transportation, in order that private owners might embark upon the construction of vessels especially for such transportation.

In the carriage of mails the appropriation subcommittee having to do with the Postoffice Department should hear representatives of the Navy Department and of the United States Shipping Board, and should make appropriations with a view to covering subventions sufficient to create and to maintain in a few principal lines the uneconomic but highly desirable type of fast passenger-carrying vessels.

"A joint transportation body, composed of representatives of the Interstate Commerce Commission and the United States Shipping Board, should be authorized to coordinate all activities involving through transportation by both rail and water. Preferential arrangements and contracts between American railroads and foreign lines should be prohibited by law.

"Conferences and agreements between carriers themselves and between carriers and shippers which look to the stabilization of rates and the provision of an improved and adequate service should be encouraged.

"A strong reaffirmation of policy should be made by the Congress to the effect that the United States is determined, either publicly or privately, to maintain permanently a merchant marine commensurate with the needs of the country from the standpoint of commerce and national

defense and that strategic trade routes will not under any circumstances be abandoned.

"Encourage the adoption internationally of a uniform system of measurement of vessels. Work with all recognized bodies toward the simplification and standardization of shipping documents, such as charter parties and bills of lading. Simplify as much as possible the paper work required by United States laws in connection with the entry and clearance of American vessels in American ports."

ENGINEERING

The "Magnus" Effect

The Engineer, 21 November, 1924.—A considerable amount of scientific as well as popular interest has been aroused concerning the so-called Magnus effect, alleged to be employed by Herr Anton Flettner for the propulsion of his wind-power ship *Buckau*. In a Journal paragraph in last week's issue we briefly indicated the nature of this effect. We now propose to set it forth a little more fully.

Heinrich Gustav Magnus (1802-1870) was a German chemist and physicist, who, after studying under Berzelius, Gay-Lussacv, Thénard, and others, settled in Berlin and eventually became professor of technology and physics at the university of that city. He studied and wrote papers on many chemical and physical subjects, such as the spontaneous inflammability of finely divided iron, nickel and cobalt, the expansion of gases by heat, the polarization of heat, thermo-electricity, electrolysis, and the thermal effects produced by the condensation of moisture on solid surfaces. Incidentally, he appears to have studied the velocity of bullets and the effect of

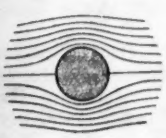


FIG. 1

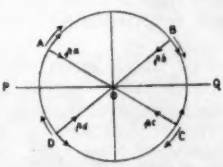


FIG. 2

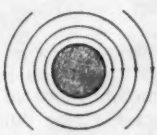


FIG. 3

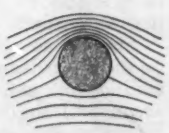


FIG. 4

wind on their flight, and, in general, the effect of wind on any rapidly rotating body. In the latter connection, he discovered the phenomenon with which his name is today being prominently associated.

Without entering too fully into the modern theories of air flow round cylindrical and other bodies, it is possible to obtain a picture of the Magnus effect by considering the superposition of a vortex motion on the stream-line flow of a fluid past a cylinder. In Fig. 1 the steady stream-line flow of an inviscid fluid past such a body is represented. It is symmetrical about two axes at right angles to each other, so that if we take four points *A B C D*, Fig. 2, on the surface of the cylinder at opposite ends of two symmetrically disposed diameters, the velocities of the fluid past these points will all be equal. These velocities are indicated by the short arrows on the circumference of the circle in Fig. 2. They give rise to pressures p_a, &tc., which, since the fluid is inviscid, are all equal and directed radially inwards toward the center *O*. Since these pressures are equal and symmetrical, they produce no resultant force on the cylinder. Now, let it be supposed that a vortex or cyclic motion such as that represented separately in Fig. 3 be superimposed on the stream-line motion, the center of the vortex being coincident with the center of the cylinder section. This additional motion

apart from the first gives rise to velocities at the points *A B C D*, Fig. 2, which are tangential to the surface and all equal. They are represented in Fig. 2 by the arrows drawn just outside the circle. It will be seen that the two velocities, so far as the points *A* and *B* are concerned, assist each other, but at the points *C* and *D* they are in opposition. The net result is that the velocities of the fluid past *A* and *B* are increased, while those past *C* and *D* are reduced, it may be, to zero or even to the extent of being reversed. The streamline flow is no longer symmetrical about the line *P Q*, but may be represented as shown in Fig. 4.

In any inviscid incompressible fluid the pressure and velocity at any point of a stream line are connected by the relationship—

$$p + \tfrac{1}{2} \rho V^2 = \text{constant.}$$

That is to say, as the velocity is increased the pressure falls off, and vice versa. It follows, therefore, that under the combined motions the radial pressures at the points *A B*, Fig. 2, are less than the radial pressures at *C D*. Consequently, there is a resultant force on the cylinder in the direction from the lower to the upper side of Fig. 2; that is to say, at right angles to the first, or stream-line, flow of the fluid. It is obvious that the magnitude of this resultant force is dependent upon the extent to which the velocities on one side of the cylinder are increased, and to which those on the other are decreased; that is to say, the magnitude of the resultant is determined by the strength of the added vortex motion as well as by the velocity of the first motion.

Generalizing the result arrived at, it may be said that if a cylinder is moved in a straight line through an inviscid flued, upon which is impressed a vortex or cyclic motion, the center of which is preserved constantly coincident with the center of the cylinder, a force will act on the cylinder at right angles to the path. As the resultant force is at right angles to the path, it follows that the cylinder will experience no resistance in the direction of its path.

Such is an elementary discussion of the Magnus effect. Its application to the propulsion of ships, as in the Flettner scheme, obviously requires additions to and modifications of our simple discussion. We have to take account of the fact that the fluid to be dealt with is neither inviscid nor incompressible. Even though a suitable adjustment could be made in a ready manner, theoretical treatment would still be unsatisfactory, because of the imperfections of any practical means which can be adopted for creating the required cyclic or vortex motion. We may imagine the streamline motion of Fig. 1 as representing the wind, but it is clear that the rotation of Herr Flettner's steel towers can give but an imperfect reproduction of the motion represented in Fig. 3.

It may be noted that the towers are about ten feet in diameter, and can be rotated up to a speed of 120 revolutions per minute. Without making any allowance for their inefficiency as generators of cyclic motion, they would thus reduce to zero at one point on their circumference a wind blowing at some forty odd miles an hour. The practical advantages of the system cannot be properly discussed in the absence of experimental data, but they would appear to rest on the result concerning which a statement is attributed to Herr Flettner, namely, that the propulsive force generated is from ten to fifteen times as great as could be obtained in the same wind from an equivalent area of ordinary sails. Considerable advantage is no doubt likely to accrue from the absence of rigging and from the fact that the resistance of the towers in the direction of the wind is as indicated by the theory zero, and in practice probably very small. It is clear, too, that by the use of two towers, the speeds of which can be separately varied, a new and powerful means of controlling the course of the vessel is made available. From the navigational point of view, the chief disadvantage

would appear to lie in the difficulty of sailing the vessel in a following wind, for in such a case the propulsive force would be fully broadside on, so that no progress in the longitudinal direction would be possible, and tacking would have to be resorted to. This circumstance perhaps explains the inventor's selection of the regions of the trade winds as the most favorable for the exploitation of his idea.

We have taken Figs. 1, 3 and 4 from a pamphlet entitled "Applications of Modern Hydrodynamics to Aeronautics," by L. Prandtl, of Göttingen University, as translated and published by the United States National Advisory Committee for Aeronautics. Fig. 2 is taken from Professor L. Bairstow's well-known work, *Applied Aerodynamics.*

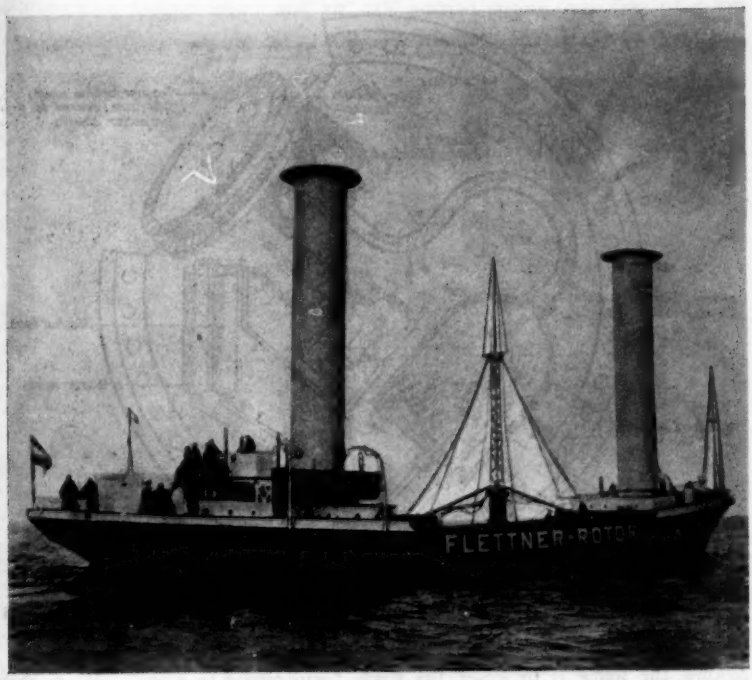
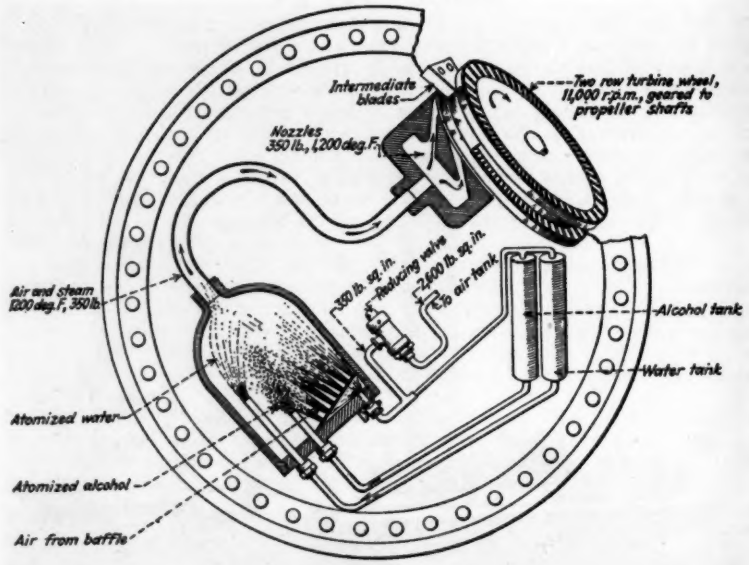


FIG. 5—THE FLETTNER WIND-POWER SHIP "BUCKAU"

Two Hundred Horsepower from a Twenty-pound Turbine

Scientific American, December, 1924.—The temperatures at which steam is used in engines have increased during the past ten years at a steady rate, but indications now show that we are ready for a much faster increase. Elevating the temperatures of steam offers greater theoretical possibilities of increasing plant efficiency than does any other means. To get high efficiency in a steam engine there must be as much difference in temperature as possible between the entering steam and the exhaust steam as it leaves. This largely accounts for the considerably higher thermal efficiency of the gas engine over the steam engine, as the latter is now used at what we call "ordinary" pressures. These ordinary pressures, by the way, will doubtless be called low pressures tomorrow. At 750° Fahrenheit, steam pipes

are so hot that they glow red in the dark. If a practical way can be found to use steam at, say, 1,200° Fahrenheit, a gain in efficiency of about sixty per cent can be had. A peculiar type of steam plant in which steam is used at this unusually high temperature has recently been perfected in the form of the steam turbine torpedo. Most torpedoes are driven by compressed air. The new steam-turbine torpedo contains, however, a miniature twenty-pound turbine which developes 100 to 200 horsepower. The boiler is only eight inches long, and is not a boiler in the usual sense, for the water which is to be turned into steam is sprayed directly against the flame. This consists of alcohol burning in air from a tank. Left alone, the flame would reach a temperature of some 1,600°. The effect of the direct spray of water


Intermediate blades
Two row turbine wheel, 11,000 r.p.m., geared to propeller shafts
Nozzles 350 lb., 1,200 deg. F.
350 lb. sq. in.
Reducing valve
2,400 lb. sq. in. to air tank
Air and steam 1200 deg. F., 350 lb.
Alcohol tank
Water tank
Atomized water
Atomized alcohol
Air from baffle

CROSS SECTION OF THE NEW STEAM TURBINE TORPEDO. THE BOILER IS UNIQUE. IN IT THE WATER IS SPRAYED DIRECTLY AGAINST THE FLAME.

against the flame is to lower the flame temperature to 1,200°. Were this not done the pipes and turbine parts, heated to a temperature as high as 1,600°, would retain little mechanical strength. The steam pressure is approximately 350 pounds a square inch, and the steam carries about 700° of superheat. The turbine proper is eleven inches in diameter and revolves at 11,000 revolutions a minute. The blade speed of the torpedo propeller is 525 feet a second—about six miles a minute!—but this does not, of course, represent the considerably lower velocity of the torpedo itself. Regarded either as a highly particularized type of steam power plant, or even as a mechnical toy, the steam torpedo using steam at 1,200° may serve to point the way toward a simplified and more efficient type of steam plant than is being used today. The boiler plant is simple, for the water is sprayed directly against the flame. The problem is largely one of metallurgy—the development of alloys which will be strong enough to confine steam at high pressures while at temperatures at which iron is red hot and has very little strength left. Elevating the steam temperature is rela-

tively more productive of increased efficiency than is increasing the pressure. Thus, if you have steam at 400 pounds pressure, and double this pressure, you will gain no more than can be got by raising the temperature from 700° to only 1,000°.—*Power* (New York), vol. 60, pages 405-406, and editorial, page 423 (September 9, 1924).

No. 218,814. Turbine Gland Sealing System

J. F. Metten, of Wynnewood, Pennsylvania, U.S.A., June 13, 1923, *The Marine Engineer*.—For sealing a turbine against leakage at the shaft, this invention employs a gland having an inner space adapted to be supplied with stem and an outer space which is connected with suction means for withdrawing leakage steam and air, said suction means consisting of a fan

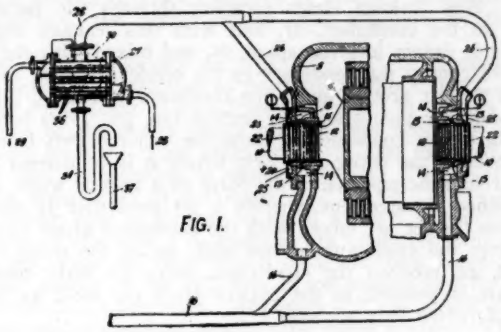


FIG. 1.

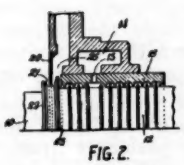


FIG. 2.

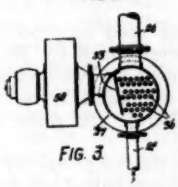


FIG. 3.

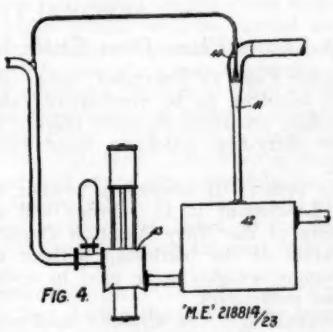


FIG. 4.

'M.E.' 218814/23

and a combined air cooler and condenser. As shown in Figs. 1 and 2, the improved gland is formed with an inner chamber, 14, communicating through openings, 13, with a labyrinth packing, 12, around the turbine spindle, 10. Where one side of the gland or packing is exposed to pressure below atmospheric, sealing steam at a pressure of about a pound above atmospheric is supplied through pipes, 16, and from thence to the packing through the radial openings, 13, so as to maintain a pressure above atmospheric at a point intermediate of the ends of the gland as shown. Where the cylinder end of the gland is exposed to pressure in excess of atmospheric, the pipes, 16, become a leak-off to maintain a pressure between the inner and outer portions of the seal slightly in excess of atmospheric. In either of the above cases there is a tendency for the steam to leak outward

through the outer portions of the seal. To prevent this leakage the system of this invention provides an auxiliary outer suction seal creating a point of low pressure through which leakage steam is drawn mixed with a small amount of leakage air entering from the outside in through the outermost barrier or seal. This outer seal comprises a supplemental baffle, 20 (Fig. 2), carried by the outer casting supporting the sleeve, 15, and fitted closely to give a bare running clearance with the bottom of the groove, 21, between the flanges, 22 and 23, on the turbine spindle, 10. On the inner side of this supplemental baffle, 20, is provided an annular suction chamber, 25, connected by piping, '26, leading to a small condenser, 27, supplied with cooling water through the pipes, 28, 29. A small suction fan, 30 (Fig. 3), connected to draw the air from the interior of the condenser thus induces flow from the space, '25, to the condenser and keeps the pressure in space 25 below atmospheric. Any leakage steam escaping through the packing is thus drawn away to the condenser, 27, and with this leakage steam a small amount of air is drawn into the space, 25, and mixed with the steam until separated therefrom at the condenser by the condensation of the steam and the escape of the air around under the condenser baffle, 33, interposed between the condenser piping and the suction fan, 30. This baffle, 33, runs the full length of the condenser to cause the vapor drawn from the space, 25, to flow through the entire tube nest where it is condensed and drained by gravity through the pipe, 34, in the form of a trap or water seal. Fig. 4 shows a modified arrangement wherein a jet condenser is employed, and the water from the jet, 40, mixed with the condensed gland steam is shown discharging into the feed tank or hot well, 42, of the usual feed system. The hot well, 42, receives the condensate from the main condensers and this condensate is pumped to the boilers from the well, 42, by the feed pump, 43.—(*Accepted July* 17, 1924.)

AERONAUTICS

Battleship Shoots Plane from Explosive Catapult

Washington *Post,* 15 December, 1924.—Bremerton, Wash., December 14.—The first airplane to be successfully shot from an explosive catapult on a battleship, according to navy officers here, was hurled into the air at a speed of fifty-five miles an hour here yesterday from the U.S.S. *Mississippi.*

Fourteen pounds of smokeless powder was used to shoot the airplane, piloted by Lieutenant L. C. Hayden and accompanied by W. M. Fellers, representative of the Navy Aviation Department at Washington, from the forward turret of the battleship without a noticeable trace of a jerk or shock. Dummy weights were used in tests before the plane was released with its two passengers.

Navy officials said the airplane used was the only one of its kind yet constructed. It differs slightly from airplanes catapulted off a ship by compressed air devices.

Navy Contracts for Twenty-three Pursuit Planes

Washington *Star,* 16 December, 1924.—Twenty-three pursuit planes, capable of performing efficiently at 175 miles per hour or more, have been contracted for by the Navy, it was learned today.

Of this number fourteen will be Boeings and nine will be built by the Curtiss Company. The planes will be used on airplane carriers to supplant the present *TS* fighting type, which has been forced to bow before the latest word in pursuit planes. They also will be used for land operations, and it is understood they will not be convertible to seaplane use.

The Army already has a number of both types in production, the first

pursuit group at Selfridge Field, Michigan, being equipped with the Curtiss *PW-8s*. A number of Boeings soon are to be turned out of the factory. The planes, while not resembling each other in construction in the present types, are about matched in speed and maneuverability.

With the acquisition of these new fighting planes to the Navy's aircraft, further production on the *TS* fighting planes will be stopped, under the policy of standardizing types of planes, which was announced by the Bureau of Aeronautics several days ago.

New Naval Air Cruiser

Aviation, 1 December, 1924.—A metal flying boat capable of making 2,500 miles in non-stop flight has been contracted for by the Navy Department with the Boeing Airplane Company of Seattle, Washington, and is now under construction, the design having been approved by the Bureau of Aeronautics.

The new seaplane, known as type *PB*, will incorporate several departures in aircraft construction as practiced in this country, an interesting feature being the placing of two Packard engines in tandem so that when in the air one of the power plants may be shut down for minor adjustments without landing. This arrangement is also expected to make for economy of fuel consumption at cruising speeds. The plane will for the most part be constructed of duralumin.

An interesting light is thrown on naval aircraft development when the characteristics of the new *PB* seaplane are compared with those of the historic Navy-Curtiss *NC* type which made the first trans-Atlantic flight in 1919. The weight of the *NC* was 28,000 pounds and its range was in the neighborhood of 1,600 miles. The navy *PB* has a full load weight of 24,000 pounds and a range of nearly 1,000 miles greater. The *NC's* wing span was 126 feet. The *PB* wing span will be eighty-seven feet six inches.

Of the total weight about 10,000 pounds will be carried as fuel, representing nearly 1,700 gallons of gasoline. Five men will compose the crew of the new air cruiser. There will be two pilots, two mechanics and a radio operator. The two engines will develop 1,450 h.p. at 1,800 r.p.m.

An interesting parallel to this development is under construction by the Navy Department in the so-called *PN9*. The latter is an all metal flying boat which is a development of the *F5L* type. The *PN9* is designed for a cruising range of 2,200 miles and will carry approximately the same number of men in the crew as the Boeing type. It is the result of efforts to create a patrol plane of superior performance, based on the design which has seen such efficient service with the fleet during the past four years in the annual maneuvers near Panama.

The first step in the development of the *PN9* was the *PN7*. Two of this type cruised south with the fleet during the last winter maneuvers and were reported to be greatly superior in performance to the older *F5L* types. An improvement on this type, the *PN8*, was next laid down. These two types were designed for comparatively short distance patrol work and the PN9 was next brought forward for long distances of 2,000 miles and more. The first two types of the *PN* boat were powered with Wright "Tornado" (T3) engines while the *PN9* will have two Packard engines.

The flying boat development for long distance patrol work which is being carried on by the Bureau of Aeronautics represents a different phase of naval aviation development from the development of airplanes to operate from ships of the fleet at sea. While the latter are designed to be carried on ship board and to operate from the ship's deck, the patrol planes might be termed the air cruiser, capable of negotiating long distances over water and operating from bases on land.

Naval officers are agreed that possession of a few squadrons of flying boats of the type contracted for with the Boeing Company would enable the United States to embarrass seriously the success of any surprise attack coming from a long distance, if their mere existence would not serve to prevent any such attempt.

The new planes, with ability to hop off unsupported from San Diego for Honolulu, would be invaluable as far-flung scouts in any critical period preceding an expected international crisis. They would be able to maintain touch with the enemy and could delay it materially by a constant threat upon the enemy train. The sinking of one or more fuel ships or provision carriers would be sufficient, some officers hold, to force abandonment of any expedition which was 1,500 to 2,000 miles from any available base.

Carrying a step further their analysis of the effect of the new air cruisers some officers see in them at least a partial solution to the problem which was raised when the United States gave up under the army limitation treaties the right to fortify Guam and the Philippines. Observers here and abroad declared at that time it would be impossible for the United States either to defend her Pacific possessions or to conduct a defensive-offensive naval war in their vicinity because of the lack of a base.

Should the proposed auxiliaries come up to expectations, however, they would comprise an emergency naval force, practically independent of their continental base, and a ready supplement to the insular defense certain to embarrass any occupational plans as now drawn.

The New British Airships

The Engineer, 14 November, 1924.—The 5,000,000 cubic foot airship, a contract for which, as we recorded in last week's *Journal,* has been placed by the government with the Airship Guarantee Company—in association with Vickers and the Shell-Mex Company—will cost the country, it is understood, £350,000. The contract price is said to be £300,000, but an additional payment of £50,000 is being made to the company as assistance toward its capital expenditure. Of this sum £150,000 may be recovered, for at that figure the company is to be allowed, if it desires, to purchase the vessel for use under prescribed conditions on an imperial airship commercial service. We hear that in anticipation of the contract being signed the Airship Guarantee Company began the manufacture of certain of the component parts some time ago. The airship will be built by the company to its own designs, subject to an outline of requirements drawn up by the Air Ministry and to principles of airworthiness prescribed by the Aeronautical Research Committee. In addition to this airship, one of a similar size is to be built by the Air Ministry at the Cardington Works as soon as the shed at that establishment has been sufficiently enlarged. It may be recalled that insufficiency in the height of this shed was given as a reason for the unorthodox position of the engine cars in the ill-fated Anglo-American airship *R 38.* These cars were widely splayed from the sides of the vessel and not situated close to the keel line. Further airship development work, apart from the construction of these two new vessels, will be undertaken by the Directorate of Airship Development now being established at Cardington. Among that work will be the refitting of the *R 33*—a sister ship of the transatlantic airship *R 34*—and her employment for research purposes. This vessel will be used to obtain technical data required for the construction of the new airships and for confirming theoretical and experimental data affecting airship design which have been accumulated since airship construction ceased in this country three years ago.

The New British Airships

The Engineer, 14 November, 1924.—Further technical particulars are now available regarding the new British airship *R 101*, which is to be built by the Air Ministry at the Cardington Works, near Bedford. Her gas capacity of 5,000,000 cubic feet will be provided for in a hull 720 feet in length, and her overall height will be 150 feet. In her construction special attention will be given to the fact that she will be required to operate in tropical climates during part of her regular voyages to India. The fabric of her gas bags will be of special but unspecified material, the propellers will be of steel, and the main part of the framework will be of stainless steel. The vessel will be propelled by seven 600 horse-power engines, designed to use heavy oil fuel in place of petrol. At full power a maximum speed of about seventy miles an hour will be achieved, on a consumption of 1,750 pounds of fuel per hour. A gross lift of 155 tons will be developed, of which seventy-five tons will be available for fuel, ballast, passengers, goods and stores. On a commercial run of 2,500 miles—that is to say, from England to Egypt, where presumably a re-fuelling station would be established—twenty tons would be available for passengers and goods. The vessel is not necessarily to be built for commercial purposes, but if it is so adapted, it should provide accommodation for 100 passengers, with two-berth sleeping cabins arranged on a deck separate from that containing the living quarters and public rooms. It is anticipated that the *R 101* will be ready for her first voyage to India by the beginning of 1927. Meanwhile, the *R 33* is being equipped for experimental purposes, and the *R 36* is being reconditioned at Pulham for trial voyages to the Middle East.

Dr. Eckener on Airships

Aviation, 1 December, 1924.—Before leaving for Germany, Dr. Hugo Eckener, president of the Zeppelin Company and commander of the *ZR-3* on her flight to this country, made certain observations that will be of interest to those concerned with commercial airship operation.

He is reported to have said that he did not think the airship would ever supplant the steamship for transatlantic travel. He thought that airships would not be large enough to take care of this traffic and that a large number of persons liked the sea trip so well that they would not want to change to the air for the sake of a few day's saving of time. This argument held in the days of sailing vessels just as it does today. Only the future can tell.

While he was enthusiastic over the *ZR-3's* ability to go anywhere through all kinds of weather, Dr. Eckener also said:

"I doubt whether the *ZR-3* can be put to this use if helium gas continues to replace hydrogen. Helium is safer, but it is not so economical as hydrogen, which really is imperative in the case of the *ZR-3*, as far as flights across the Atlantic are concerned.

"Helium has not the lifting power of hydrogen. When we sailed from Germany the bag was filled to capacity and the load limited to a minimum. We were able to carry thirty tons of fuel. If helium had been used we would have been able to carry only twenty-two.

"When we landed in Lakehurst we had six and a half tons of fuel left. Had helium been used, the fuel carrying difference would have meant the difference between success and failure.

"Then, too, helium is much more expensive and I doubt mail trips could be made practical with its use."

Such words of caution are timely when there is so much propaganda being spread regarding the advantages of helium over hydrogen.

While the fire proof properties of helium may have some value for mili-

tary operations in wartime, inasmuch as it would lessen the risk of an airship being set on fire by incendiary bullets, it should be kept in mind that even a helium filled airship presents a serious fire risk as long as it carries tons of highly inflammable gasoline on board. The real answer to the problem is the development of heavy oil engines for airship use. In this connection it is of interest to note that one of the two 5,000,000 cubic feet rigid airships that were recently ordered by the British Government will be equipped with crude oil engines. The outcome of this experiment will be watched with great interest by all proponents of the airship.

ORDNANCE

British Note Sent to United States on Gun Elevation

Baltimore *Sun*, 20 December, 1924.—Washington, December 19.—A note has been received by this government presenting the British views regarding the proposed elevation of the guns on the eight American battleships, which American naval experts insist are outranged by British ships of the same type.

Exactly what representations the British make are not disclosed. The fact that a note was in hand was not known until late today, when word of it was passed out by the White House. No comment upon it was made by the executive offices, however.

It is believed, however, that the British take the position that the elevation of the heavier batteries on the American ships would be contrary to the spirit if not the letter of the Washington Treaty and that the London Ministry denies again that the British Admiralty has changed the elevation of any of its battleship batteries.

The issue with the British was first raised nearly two years ago, when the Navy Department openly asked Congress for an appropriation of approximately $8,000,000 with which to elevate the guns of the American capital ships so as to give them equal range with those of the British battle fleet.

Naval officers in presenting the case to the committees of Congress quoted reports from American officers in London, indicating that since the signing of the Washington Treaty the British had elevated their own guns and thereby had attained a marked degree of superiority over the American battleships.

The money was appropriated as the result of this testimony and work upon the American ships actually commenced. About that time Sir Auckland Geddes, the British Ambassador, officially notified the State Department that the American Navy Department was in error regarding the elevation of the British guns, adding that the British Government would regard the changes proposed in the American batteries as contrary to the accord reached at the Washington Conference.

The Administration, acting upon the protest from the British, suspended work upon the American ships and seemed to let the whole matter drop.

Some months ago reference was made upon the floor of the House of Commons to the gun-elevation question, at which time the British Government indicated that conversations were in progress with the American Government upon the question.

It appears, however, that these conversations have extended beyond the conference stage in Washington and in London and that the British have found it advisable to set forth their views upon the matter in a formal communication.

At the State Department tonight it was stated that the government had nothing to say upon the question of the British note referred to by the White House.

Wilbur Is Preparing Review of Gun Elevation Question

Baltimore *Sun*, 29 November, 1924.—Washington, November 28.—Questions involved in proposals to raise the elevation of main battery guns of a number of the older American battleships are expected to arise in committee deliberations at the coming short session of Congress, but it appears probable that the discussion will be confined to the wisdom of making the expenditures necessary for the work and will not be complicated by any suggestion that the exchange would be in violation of the Washington arms limitation treaty.

Recommendations made by Admiral Eberle, Chief of Naval Operations, in his annual report, that the guns on thirteen ships be elevated, have served to bring the question to the front. In that connection, it was disclosed that Secretary Wilbur is preparing, at the request of Chairman French, of the Naval Subcommittee of the House Appropriations Committee, an extensive statement on conditions in the naval service which will include a review of the situation as to gun elevation. The Secretary's statement is expected to be in the hands of the subcommittee before it takes up the naval estimates for the coming fiscal year.

As far as can be learned, the main question as to gun elevation which will be presented to the subcommittee will have to do with the fact that the alterations proposed would be expensive and that some of the ships which would be altered will be subject to replacement with new ships in approximately ten years. Secretary Hughes called attention to this situation in discussing gun elevation during a campaign address delivered in New York on November 1. The Secretary of State at that time said the whole matter of gun elevation was one for consideration as an economic problem of Congress, and he expressed the belief that Congress would so dispose of it.

Taken in connection with the proposal advanced by the British Government some months ago to the United States and other powers signatory to the Washington Treaty that there should be a further conference to determine the expected interpretation of certain clauses of the treaty, Mr. Hughes' statements in New York were then viewed as significant. The British communication specially presented the view that elevation of guns on battleships was prescribed by that section of the treaty which forbids changes in general types of gun markings on battleships to be retained.

No formal statement of the opinion of the Washington Government has been made since that time, except as it was disclosed in Mr. Hughes' remarks during the campaign. It is not known whether any definite reply has been made to the British proposal. In his New York address, however, Mr. Hughes said flatly that the gun-elevation matter had never been mentioned during the Washington Conference so far as he knew, and this statement conforms to the previous understanding that the restriction contained in the clause to which the British communication called attention was proposed for the purpose of preventing the practical reconstruction and rearmament of old battleships under the guise of minor alterations.

Beyond question, American official opinion holds that the proposed increases in elevation are no more than minor changes and well within work permissible under the treaty. It was emphasized in the New York address by Mr. Hughes that in the case of any new ship to be built under the treaty in replacement there was no question whatever as to the right to provide for full elevation and maximum gun range.

Secretary Wilbur's statement to Chairman French is expected to cover many aspects of plans for modernization of the battleships of the fleet which have been under consideration for some time. Mr. Wilbur himself has indicated that he shared the views of high naval officers that the guns should be elevated, but no information has been made available as to what the Administration's attitude will be when Congress convenes.

The original gun-elevation bill went through Congress as an Administration measure on the strength of a report that the British had made similar changes in their older ships after the Washington Conference was held. This proved incorrect and the funds were turned back to the treasury.

Whether an Administration proposal to renew the elevation appropriation will be laid before Congress or whether the Administration program is framed in the view that this would be unwise at present is not known. There have been indications from several sources, however, that individual members of Congress in both houses intend to introduce bills on their own motion seeking to make funds available at once for modernization of the ships, including the raising of gun elevations.

Wilbur Urges New Long-Range Rifles for Fast Cruisers

Washington *Post,* 11 December, 1924.—Stress laid by Secretary Wilbur on the immediate need for construction of 10,000-ton type cruisers to bring the navy up to a 5-5-3 ratio equivalent with other treaty powers attracted attention yesterday to the probable size and power of these post-treaty craft as planned by American navy designers.

Details of the plans have not been divulged by the department, although a provision for laying down eight of the ships is contained in the pending naval increase bill and there is reason to believe the general board has recommended increasing that number to a dozen vessels.

The naval secretary did reveal one highly significant detail in his statement Monday to the House subcommittee. He disclosed that navy ordnance experts already have developed a new type of 8-inch rifle, that being the limit of size of guns for auxiliary craft set by the treaty.

"By increasing the initial velocity of the 8-inch shell the striking power can be and has been greatly increased," he said.

Increased velocity could be obtained either by improved explosives or increased length of gun. Since the navy adopted a 51-caliber, 6-inch gun for the only modern cruisers now in commission, the ten light vessels of 7,500 tons, it appears probable that the 8-inch guns also have been increased in length to increase range and hitting power. A 51-caliber, 8-inch gun would be a weapon thirty-eight feet in length, or almost as long as the one-time 13-inch monsters of that historic old warrior, the *Oregon,* queen of the Navy in her day. Those were 35-caliber guns.

The number of guns each of the 10,000-ton cruisers is to mount has not been disclosed. Intimations have come from abroad, however, that the British post-treaty cruisers will carry eight or ten 8-inch guns, or possibly nine, mounted in trios under light housing to protect them from the rush of water in a seaway, so that they could fight even under such conditions.

The size of the ships presumably would permit such armament without radical loss in the high speed necessary for the carrying out of their missions. It is to be expected that the plans of both services contemplate maximum gun power consistent with high speed and fuel capacity for 10,000 or 12,000 miles without refueling.

Recent American ships, even to the first 2,000-ton fleet submarine *V-1,* have been equipped with electric drive to give them maneuvering ability obtainable through having full power available in reverse. It would cause little surprise if the American post-treaty cruisers also proved to be planned for electric propulsion when the details are revealed, and it seems certain they will be intended to approach a maximum speed of 35 knots and to be able to sustain a fairly high speed even in a heavy sea.

What the advantage would be to a navy possessing such ships as these against an opponent with only destroyers equipped with 4-inch guns or old cruisers was pictured in a statement issued last night by the Navy league:

"Post-conference light cruisers are 10,000-ton ships mounting eight or

ten 8-inch guns," the statement said. "Their speeds are practically equal (to modern, 35-knot destroyers) with the cruisers at an advantage in a heavy sea.

"The light cruisers could drive in destroyers in a fleet action and thus prevent them from performing scouting duties; in commerce warfare the cruiser could wipe the destroyers from the sea, ordinarily without risk to itself.

"It should be remembered that a light cruiser of today is vastly superior to the pre-dreadnaught battleship of twenty years ago. Its guns have longer range and greater striking power. Its speed is almost double that of old battleships. It could destroy either battleships or cruisers of two decades ago without subjecting itself to risk."

The league statement cited the battle of Coronel, when Admiral Craddock's British squadron of old ships was destroyed by a German force of equal tonnage but in modern ships, almost without injury to the German craft; the lesson being duplicated at the Falkland islands fight subsequently, when a British battle cruiser squadron rounded up the Germans and hammered them to pieces while standing out of range of the German guns.

"Obsolescence of warships is no theory," the statement declared. "It was clearly demonstrated in the World War."

The statement added that the American Navy had built or had in process of construction only the 7,500-tonners in cruiser strength "which may be said to have military value," all others being so old as to be obsolete.

NAVIGATION AND RADIO

Radio Device Guides Ship, Controlling It from Shore

Washington *Post*.—Spezia, Italy, November 9.—Your correspondent today witnessed an official test of the Fiamoa radio telegraphic device which makes possible the guiding of a submarine or air torpedo to any destination within reason. The invention is unique in that the apparatus is immune from interference from any outside electrical or radio influence. The head of the department of communications and leading naval and military men were present.

A submarine chaser in which a Fiat motor was installed was advanced, stopped, reversed, turned from side to side—and blew an electric siren simultaneously—at bidding of operators ashore, who included the inventor, G. Fiamoa, and military officials.

A new principle is used in the mechanism. Heretofore, various signals were given by varying wave lengths, which of course, made it possible for other stations to tune out the operator. Only one wave length is used in the Fiamoa device, and the selection of signals from the home station is obtained through the principle of sympathetic vibration of similar instruments ashore and on board ship.

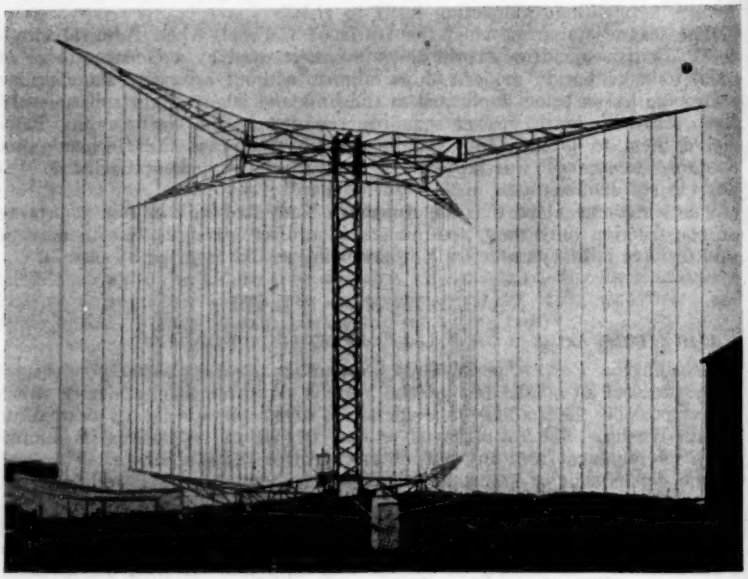
Regardless of the number of stations attempting to paralyze the working of the instrument by clogging the air with strong signals of the same wave length as used by the operator, the vibrator aboard ship is so regulated as to select only signals which are broadcast at a fixed frequency. Eight different frequencies are used and in no case has the vibrator failed to respond as desired. It is impossible to confuse the signals.

The invention is regarded as immensely important, not only as a war device for torpedoes and airplanes filled with explosives for use against enemy positions, but it opens up an entirely new principle for communications, making possible the transmission of an endless number of characters which can neither be deciphered nor interfered with by outside influences.

New Radio Aids for Saving Ships

The Tech Engineering News, November, 1924.—As soon as the radio compass for detecting the direction of radio waves was invented and applied to the use of ships at sea, it became possible to construct at dangerous points on the sea coasts of the world a set of radio lighthouses to serve as adjuncts to the ordinary lighthouses, which have been for more than twenty centuries the chief reliance of a mariner as he approaches port.

A recent improvement in these radio lighthouses consists in sending out, not merely a radio signal that goes broadcast in all directions, but an actual radio beam that goes only in one direction, like the beam of a searchlight.



THE NEW RADIO BEAM "LIGHTHOUSE"

The wire cage shown serves both as a transmitter and as a reflecting mirror, and is mounted on a central shaft so that it can be revolved. As it revolves, the beam of "radio" waves sweeps across the ocean surface.

The transmitter employs the reflection principle for radio waves, as developed by Senator Marconi. The wire cage that serves both as transmitter and as reflecting mirror is mounted on a central shaft so that it can be revolved. As it revolves, the "beam" of radio waves sweeps across the ocean surface, just as the beam of a revolving searchlight does.

The transmitter shown here has been installed at Inchkeith, on the coast of Scotland. It has been in operation for over a year and has been recently rebuilt to embody important new improvements. The region where it is installed is especially subject to thick fogs, and it is reported that the revolving radio lighthouse has already established its value, many times over, in the increased safety to ships and, more directly still, in the avoidance of delays due to fog. It is probable that these radio beam lighthouses will be installed elsewhere on many fog-bound coasts.—*Scientific American.*

Navy to Modernize Radio Apparatus

Improvements Planned to Increase Efficiency by Eliminating Interference.—Washington *Post,* 30 November, 1924.—Elimination of interference to broadcasting stations, as well as increased efficiency in radio communication, are the objects of an elaborate schedule of modernization of transmitting and receiving apparatus which is being worked out by the Navy Department.

Among the work already done by the department has been the conversion of the navy yard set to straight C.W. operation, the installation of a C.W. tube at Arlington, and the erection of new antennae at Annapolis and Arlington.

In the near future, the department plans to install a fifty-watt, thirty-meter tube set for controlling by radio relay the one k.w. high frequency transmitter at the Bellevue laboratory so that it can be keyed from radio central.

Given modern receivers, with the tube transmitters now or shortly to be available, it is confidently expected the department's communication office will be able to maintain direct communication with all the larger vessels of the fleet cruising anywhere along the Atlantic or Gulf coasts of the United States. Reports on the comparative tests of the *Arlington* and navy yard tube sets, received from ships located at points all along the coast, indicate the feasibility of this project.

Radio Is Found Aid to Mariners in Fog

United States Lighthouse Service Has Now Twelve Signal Stations of this Type at Work. Radio Compasses on Ship.—Washington *Post,* 30 November, 1924.—"The value of radio as an aid to navigation, especially as a protection against fog, the greatest of all dangers to the mariner, has been further demonstrated during the past year," according to George R. Putnam, commissioner of lighthouses, in his annual report to the Secretary of Commerce.

"The United States lighthouse service now has twelve radio fog-signal stations in operation, with three lightships equipped for relief, and is proceeding with the establishment of other stations as rapidly as funds permit," he says. "This relatively new aid to navigation has met with great favor with mariners, as evidenced by the demand for additional installations and the equipment of vessels with radio compasses.

"The United States leads the world in this form of aid, having been the first to establish successful radio fog signals and now having more stations in operation than all the countries of Europe combined. Canada has also made important progress in radio aids to navigation.

"An important advance has recently been made in the radio aids to navigation by the introduction of tube transmitters, designed to take the place of spark transmitters. After test, one of these was installed on Ambrose lightship and is in successful use. On Nantucket lightship a more powerful submarine signal, the oscillator, has been installed.

"The total number of aids to navigation operated by the lighthouse service at the close of the fiscal year number 17,288, an increase of 395 over the preceding year. This number included 147 new automatic lights, of which seventy-five were changed from attending lights."

Radio Troubles Studied in Naval Laboratory

Shore Station Transmitting Frequencies Checked to Aid Vessels. The achievements of the naval research laboratory, at Bellevue, D. C., as disclosed by its annual report are considered by experts to be noteworthy. Here is the laboratory report, in so far as it deals with radio experiments:

"The laboratory makes a monthly check of shore station transmitting frequencies, thus assuring their working on designated wave lengths. Apparatus has been developed to give a ready means of frequency calibration for all vessels afloat, and this will not only speed up communication between any two stations but, with improved apparatus, will make available more communication channels in the range of frequency bands assigned for naval use.

"Incident to the phenomenal growth of broadcasting, it has been found that some of the naval highpower transmitting stations cause interference in reception of radio programs in their immediate vicinity. These stations were constructed at great expense, and money is not available to replace them at once with more modern equipment. An extended study of such interference is being made to find means of removing this objectionable feature without excessive cost to the government.

"Apparatus reducing the excessive trunk losses on board ships has been developed and it has been found that such apparatus also has an important application to shore stations, as it permits increasing the number of antennae available without corresponding increase in expensive radio towers.

"A means of multiple reception on a single antenna has been worked out, and trial in service installations show that vessels were able to receive several messages simultaneously over a single antenna at the same time permitting tube transmitting on most frequencies without interference with this reception. This alone more than doubles the communication efficiency of vessels so fitted."

Navy Ocean Study Aided by Science

Various Forms of Apparatus Provided for Research to Learn Depth Secrets. Washington *Star*, 27 November, 1924.—Various forms of scientific apparatus are expected to be brought into play in the Navy's proposed expedition to learn more about oceans, their chemistry, resources and bottoms.

The U.S.S. *Rainbow*, which has been suggested as the craft to initiate the sea-exploration program in the Gulf of Mexico-Caribbean region, is 350 feet long, has a draft of seventeen feet and displaces 4,350 tons, and is amply provided with comfortable quarters and cabins to take care of extra personnel for scientific work, naval officers say. Sufficient room exists aboard for laboratories and tanks for collecting living specimens.

The latest type of sonic depth finders and radio would be installed on the *Rainbow*, under plans mapped out by a special conference on oceanography, which has just made its final report to the Secretary of the Navy. With her officers and crew gathered from the naval establishment, the *Rainbow* would carry a specially selected scientific personnel, consisting of one oceanographer, one biologist, one geologist and six or more scientific assistants. The conference suggested that the first three should be outstanding in their special fields and the younger scientists might be drawn from universities, colleges and other institutions. While subsistence and travel expenses to and from their homes for the scientists were included in an estimated cost of the expedition, the conference expected that sources outside the government would defray their salaries.

The sonic depth finder, developed by naval men after its invention by Dr. Harvey C. Hayes, rapidly determines ocean depths, and is expected to play a major part in the expedition. An apparatus for determining the salinity of sea water from measurements of its electrical conductivity was advocated for use, in discussions in the conference. A proposed design of automatic recording thermometer to supply a time temperature record on a chart, accompanied by a simultaneous time depth record, to be registered aboard ship as the thermometer is lowered, was mentioned by Dr. L. J. Briggs, chief of the division of mechanics and sound, Bureau of Standards,

in offering the aid of the bureau in an advisory capacity regarding design of apparatus for temperature measurements.

Data concerning interference in remote portions of the globe between high-powered stations are to be sought during the expedition, and the installation of equipment for measuring intensities of radio signals from different stations has been urged. An instrument from which the number of dust particles in the atmosphere may be counted has been devised by the Weather Bureau and was suggested for use on the expedition in the study of visibility.

The expedition, it was pointed out, affords exceptional opportunity for testing various devices and methods developed as aids to navigation. In this connection it was suggested that a comparative study be made of taffrail logs and of Pitot tube speed indicators. An artificial horizon, gyrostatically stabilized, might also be tested in making sextant observations when the sea horizon is obscured.

MISCELLANEOUS

Arms Parley Call Up to Europe, United States Officials Believe

By David Lawrence, Washington *Star*, 20 November, 1924.—Although the United States Government is deeply interested in every move that may reduce the cost of armaments to the civilized world and lessen the changes of war, the Coolidge administration expects the initiative in respect to land armament reduction to come from European powers.

Senator Borah and others who feel the American Government should call another arms conference are of that opinion largely because they think that unless the United States takes a hand in the land armament question, as was the case with naval armament, little will come of the talk of reduced armament.

If, on the other hand, the United States Government felt that the mere call of an arms conference was an assurance of success, President Coolidge would call one overnight. That, however, isn't the case and, unfortunately, there are some factors which make it apparent the American Government can only helpfully advise and cannot compel reductions even by force of opinion as occurred with the naval conference. At that time America came forward at the very outset and proclaimed a program of sacrifice. Having one of the two leading navies in the world, the United States could take the leadership, and by her example compel the others to follow or be placed in the awkward position of blocking reduction.

With land armament the whole question changes. The United States has one of the smallest standing armies in the world, just enough for police protection and probably not as much as European powers with the same length of boundaries would think was safe. For the United States to announce her willingness to cut her standing army would have no effect on European powers and the administration knows that all too well. When the last arms conference was held in Washington, Premier Briand told the world how France regarded the question of land armament and virtually killed all chance of even discussing the question in the same conference with naval reductions. The American commission was reluctantly compelled to agree to that viewpoint or else enter into a controversy over reparations and the security of France. This is still the obstacle against American entry into the discussion of land armament.

The Coolidge-Hughes administration is trying scrupulously to keep out of European parleys about frontiers, security, offensive and defensive alliances and all the other intricate political problems that are wrapped up in the debate on whether a large or small standing army shall be retained to prevent another European war.

The American Government is deeply sympathetic—that is about all that can be said at the moment. Should a conference be called, America would accept an invitation to be present and would lend a helping hand at every turn to make the conference a success, but a nation which eschews European problems cannot, it is felt by the highest government officials, enter into the land armament question without being inconsistent and doing the very thing the administration in its recent campaign promised not to do.

The President and Secretary of State look, therefore, for Europe to take the initiative. If Europe wants the conference held in Washington, America probably would gladly consent, but there is a feeling that the place for the next armament conference is in the country which has the largest army and which must come forward with a program to which other nations can subscribe just as did the United States in the naval conference.

The limitation of aircraft building, submarines and other new weapons of war are, of course, related vitally to the land armament problem. The Washington conference was nearly wrecked by the conflict of opinion about submarines, and the delicacy of that question alone illustrates how much more complicated is the matter of military strength generally.

The renewed discusion of an arms conference while regarded as somewhat premature, because Europe has hardly digested the Dawes plan for economic reform especially on reparations, is looked upon as a healthy sign of the times, but before reduction of armament gets into the realm of tangibility there are other economic problems that will become involved in the discussion.

America has declined to discuss interallied debts in relation to the money owed to the United States by France and other allies. Interallied debts stand out as the big unsettled problem of Europe. Were they out of the way and a program of payment arranged, the powers themselves would, for economic reasons if for no other, be interested in scaling down the military budgets. It's considered, therefore, here as a European problem in most every phase and the policy of the administration is that the initiative in European questions must come from Europe.

Japanese Warns of Disarmament

Oxford, England, November 20.—The world should proceed most cautiously in any scheme of disarmament, Baron Hayashi, Japanese Ambassador to Great Britain, told the Oxford International Assembly in an address last night on "The Foreign Policy of Japan."

The League of Nations was yet too young—"the Americans think it still a child"—the Ambassador said, adding:

"Let it wait until it reaches full age before it attempts such a great task as disarmament. I think the question of disarmament should be talked over slowly."

Baron Hayashi also advised a waiting policy with regard to the present situation in China, declaring the powers should not be in a hurry to intervene. On the other hand, China should not be overhasty in terminating extraterritorial rights and concessions, even though she was less independent now than Turkey or Afghanistan.

The Ambassador characterized self-determination as a danger in the Far East, adding that for the present the Philippines, Borneo and Indo-China should remain under foreign protection. He also advocated a waiting policy as regards Siberia, but said Russia had no right to exclude the rest of the world permanently.

The population of Siberia was scanty and its resources great and other peoples should be allowed to participate in opening up these resources.

Second Naval Parley Needed, Says Expert

By Captain Dudley W. Knox, U.S.N. (retired), Baltimore *Sun*, 16 December, 1924.—Washington, December 15.—The bill passed by the Senate on December 11 authorizing the construction of eight cruisers for the Navy, in the final analysis points to the pressing need of another limitation of armaments conference. In one sense these new cruisers will merely serve to balance the American Fleet by supplying a marked deficiency of cruisers without which the fleet as a whole cannot operate efficiently, but, also, their construction will be in effect a participation in the post-treaty competitive building, initiated by Japan on a large scale soon after the Washington conference and followed rather tardily by Great Britain on a lesser scale.

This new competition is the outcome of the failure to limit auxiliary naval tonnage by the naval treaty and it bids fair to rival the costliness of the former competition. Our comparatively modest start of eight light cruisers will involve an expenditure of nearly $90,000,000. If we keep pace with Japan, whose approved program already provides for about twenty-five modern cruisers, our expenses may easily approach these supposed to be saved by the limitation provisions of the present treaty in respect to capital ships.

It will be recalled that at the opening of the Washington Conference on the limitation of armaments, Secretary of State Hughes submitted a very broad and comprehensive plan of limitation. This plan was well balanced by the inclusion of all types of ships. Agreement was reached upon a limitation of capital ship and aircraft carrier tonnage, but when it came to the equally important provisions relating to the limitation of so-called "auxiliary tonnage"—that is, cruisers, destroyers, submarines, etc.—conflicting opinions and interests prevented any settlement. Disagreement revolved about irreconcilable differences between the French and British delegates in respect to submarine quotas, and discord here naturally involved types of auxiliary combatant vessels suitable for anti-submarine work.

The final result, limitation of large ships, but non-limitation of small ships, destroyed the balance of Mr. Hughes' original proposal. The door was left open for competitive naval building, which it had been a principal purpose of the conference to prevent in future.

After the treaty was signed the first power to take advantage of this liberty of action in respect to constructing auxiliary tonnage was Japan. She already had a large program, which was revised downward to a small extent in aggregate tonnage, but revised upward in the size, radius and offensive power of individual units. It remained an exceedingly large project, which many persons deemed contrary to the general spirit of the treaty, in that it was certain to defeat a principal object declared in the preamble of reducing the burden of competitive armaments. With the possible exception of France, Japan was the only signatory power which had laid keels for new cruisers, destroyers and submarines within a year after the treaty was signed.

Already possessing a large number of cruisers and other auxiliaries, Britain followed suit at a slower pace and on a smaller scale. The United States was still more backward in entering the competition. For example, her program for cruisers, actually in hand when the treaty was signed, would provide her ultimately with only ten modern vessels, as compared with between twenty-five and thirty which the Japanese would possess by the end of 1927.

We persisted in delay, notwithstanding that our deficiencies seriously unbalanced our fleet and new construction could easily have been justified on this ground alone. In large naval operations numerous cruisers are required for various purposes. They are exceedingly useful in scouting to obtain

information, without which the whole fleet operations and objectives may prove abortive. They are indispensable in support of destroyer operations. In fact our great destroyer force would be largely impotent without the support of cruisers which we do not possess. Cruisers are also extremely valuable in increasing the effectiveness of submarines and aircraft. There is no type of naval vessel except battleships which have a greater influence upon the success of fleet operations than cruisers.

But the scale on which Japan is building and projecting cruisers and other auxiliaries indicates much more than an intention of merely balancing up her limited capital ship strength. The aggregate power of a fleet may be greatly changed by swelling the auxiliary power while strength in capital ships remains stationary. If the strength of the right arm remains unchanged, the power of the man may nevertheless be greatly augmented by increasing the strength of the left arm. Japan's auxiliary combatant ship project has assumed the proportion where the treaty 5-5-3 ratio is being rapidly upset, and the only way in which that ratio can be preserved is for other nations to enter into competitive building; unless another treaty can be negotiated which will take into account this vital element in aggregate naval power.

It is sometimes mistakenly assumed that competitive building in auxiliary naval tonnage does not entail great expenditures of funds. The fact is that such building may easily become as expensive as competition in battleships. Our eight new cruisers just authorized, though money for them is not yet appropriated, will cost the country nearly $90,000,000—as much as three battleships would cost. To reach a cruiser ratio of 5-3 with Japan, at the pace she already has set, would cost us upward of $250,000,000 in a very few years. To attain the same ratio in submarines at the Japanese pace would involve another $100,000,000. The useful life of a destroyer being only about fifteen years, in less than ten years we must begin construction of about $200,000,000 worth of destroyers if the treaty ratio in that type is to be met.

Without counting other auxiliary types here is enough expenditure in prospect to equal the cost of our full quota of eighteen battleships under the treaty. If the Japanese pace is meantime accelerated we will have to spend even more to keep up. There is really no financial limit to the present competition any more than there was to the pre-conference competition. There is virtually the same opportunity as before to alter relative naval strength by one nation outbuilding or underbuilding another. In his opening message to the present session of Congress President Coolidge voiced the repugnance of the American people to engage in naval building competition. The only alternative appears to be another conference which will limit all forms of naval power. Notwithstanding a general assumption to the contrary the navy would welcome a real limitation rather than the present partial one.

Prevision in Strategy

By Sir Herbert Russell, *The Naval and Military Record*, 5 November, 1924.—Captain Thomas G. Frothingham, of the United States Navy, has been asking, in the course of a history of the Great War, whether the British Navy was really prepared to meet the struggle it had so long regarded as inevitable? The question is a perfectly legitimate one, coming from a critic of our achievements and our failures. On the material side Captain Frothingham apparently considers that we had done all that was possible. To be sure, under the searching test of the great reality we discovered defects which theoretical perception had failed to realize, such as the need for more adequate magazine protection and of greater fire elevation in our capital ships, but with this aspect the United States naval officer

is barely concerned. The real point of his criticism is that we had not shown sufficient prevision in the matter of how to get the fullest value out of our preponderance of sea power, and I think that in the light of that wisdom which comes after the event—and in which he himself is sharing—the consensus of British naval opinion will be disposed to agree with him.

Looking back upon the pre-war days, from the time when the shadow of coming events had become unmistakably ominous, my own humble impression is that the Admiralty were considerably more preoccupied by consideration of what the German Navy would be likely to attempt than in the elaboration of all possible schemes of initiative strategy. We had been taught to believe that the German Admiralty had perfected their own plans and that they would choose their own time for shooting the bolt, so as to ensure the materializing of what they conceived to be their one chance of victory by sea. The very critical situation which existed for some days at the period of the Agadir business in July, 1911, was regarded as a precedent upon which all German schemes directed against our navy would be based, and there is little doubt that this assumption was justified. If the whole weight of the High Seas Fleet could be thrown at a given time upon a part of what we later came to know as the Grand Fleet, giving a numerical superiority to the former for a period more than ample to allow of a decision, the result might be an overwhelming disaster to British sea power. Such a possibility actually existed during the Agadir crisis, but never afterwards. The Admiralty had learned the lesson of those few short days of tense anxiety, when every British warship in the North Sea was cleared for battle and guns' crews slept at their action quarters, and so it came about that many hours before a state of war was declared in August, 1914—indeed, before it was by any means certain that a state of war would be declared—the whole of the British Battle Fleet slipped quietly into its war station off the Scaw and the door was locked against all the plans which the Wilhelmstrasse was supposed to have so diligently worked out for years past.

But having taken this shrewd initial step, the Grand Fleet waited. The next move was left with the German Navy. I am not for one moment suggesting that Admiral Jellicoe should, forthwith, have attempted something heroic on the "Nelson touch" lines. We were on the threshold of a war of which no living man could foresee the ultimate character, nor the tremendous possibilities. But the real point is, were there any perfected schemes in existence upon which the naval commander-in-chief could have acted? Naturally, any such scheme would have been based upon a presupposed line of action on the part of the German Navy, just as the plans of the Marine Amt always assumed certain conditions with regard to our own situation. We know that the late Lord Fisher, when he returned to the Admiralty, was full of big projects. He wanted to carry the sea war into the Baltic; to make a great descent upon the Belgian coast; in fact, to use our preponderant striking force in striking somewhere. That such ideas had equally occurred to others is, of course, too obvious to labor. But Captain Frothingham maintains that they had never been worked out to the point of complete strategical schemes. Fisher's loud protest was that the outbreak of war simply found the British Navy in a posture of "wait and see."

The fact is that the war came just a little too soon. The Admiralty had not yet emerged from that state of transition in connection with its strategical rôle which dawned when, despite sturdy opposition, Winston Churchill had created a war staff. As he himself records in his book *The World Crisis:* "At least fifteen years of consistent policy were required to give the Royal Navy that widely-extended outlook upon war problems and of war situations without which seamanship, gunnery, instrumentalisms

of every kind, devotion of the highest order, could not achieve their due reward. Fifteen years! And we were only to have thirty months!"

Of course, there had been "one man" conceptions for dealing with a state of war with Germany. In 1909, when Fisher was first sea lord, he laid it down in his war orders that the close blockade of German ports was to be the immediate and consistent policy, but in 1909 the full potentialities of the submarine and the mine were not realized in the neutralizing influence they must effect upon the tactics of close blockading. Admiral Sir Arthur Wilson, reputed to be the greatest strategical genius of his era, modified Fisher's doctrine—but never revealed in what particular way. His career affords the strongest possible condemnation of the "one-man" direction of naval war policy. None questioned the wisdom of his decisions, but none knew what these decisions were until the actual results of them were revealed. His master mind assumed entire control and supreme direction, but if his master mind suddenly failed—an ever-present contingency in wartime—those who succeeded him could only carry on by the process of guessing at his intentions. Possibly he had great conceptions for the conduct of the sea war against Germany, but, if so, he never disclosed them.

Churchill had no enviable task in dealing with such a condition, rendered the more difficult from the fact that it was set deep in tradition. He writes of Wilson: "He considered the creation of a war staff quite unnecessary. . . . He was, as I believe, still an advocate of a close blockade of the German ports, which to my lay, or military, mind the torpedo seemed to have rendered impossible. There were large and vital differences. He, on his side, probably thought that we had got into an unnecessary panic over the Adagir crisis and that we did not properly understand the strength and mobility of the British Fleet nor the true character of British strategic power."

Under such a régime one may well ask how could there exist full and matured strategical schemes, based upon prevision of the possibilities of such a struggle as we entered upon in 1914? Sir Arthur Wilson had a great mind. He visualized things on the grand scale. Beyond this, he was prepared to deal with the occasion as it presented itself. The navy learned its lessons from the naval maneuvers he conducted—when they were over. Until they were over very few were able to grasp the tactical scheme of them. This may not be very material in connection with naval maneuvers. It is a point of supreme moment in connection with war.

It may be reasonably argued that the German Navy War Staff did not prove an unqualified success, but its principal troubles were brought about by political dissent. There was no indecision about its strategical decisions. The alternative to the fond, and rather forlorn, hope of a swift decision against our divided forces at an opportune moment had been closely considered, and was undoubtedly carried out in its original entirety. From the day that Germany realized that she could not match her High Seas Fleet against the Grand Fleet save in the terms of courting disaster, she did the very wisest thing. She conserved her fleet, thus retaining a standing and most formidable menace to ourselves. We could never say that we had command of the sea while the second most powerful navy in the world remained intact, distant only a few hundred miles, and ready at any moment to issue forth and dispute supremacy.

On our side we conformed to circumstances: that is to say, we accepted conditions instead of seeking to create them. It was a safe course, and therefore, probably, a wise course, but victory does not lie that way. Germany followed her preconceived plan from the outset. We had no preconceived plan other than to wait and to watch. In fact, we left it to the enemy to make our plans for us. Had the Fisher doctrine of bold initiative been followed, had the Grand Fleet burst through into the Baltic at the

outset of hostilities, who can say how history might have been written? The High Sea Fleet must have followed to try and protect the long German sea frontier. Such a step would have meant uncovering our own shores to a swift descent, but you must take risk in war. For the Grand Fleet to have entered the Baltic as rapidly as possible after the declaration of war would have been a strategic hazard of supreme prospects—and corresponding risks. Had Churchill's War Staff been in existence for fifteen years when war broke out, such a scheme undoubtedly would have been in existence, complete down to the minutest detail. Whether it would have been attempted is, of course, quite another matter. As it was, it remained for Lord Fisher to cry out as to why it had not been attempted—when it was too late.

Twelve New Warships Proposed for Brazil

Baltimore *Sun*, 9 December, 1924.—Buenos Aires, December 8.—The Construction of twelve new warships is recommended in a resolution adopted by the naval committee of the Brazilian Chamber of Deputies, according to advices received today from Rio Janeiro by *La Nacion*.

The resolution provides for two cruisers, of approximately 10,000 tons each; four destroyers, of 1,1440 tons each; one destroyer, of 1,800 tons, and five submarines, of between 1,300 and 1,500 tons each. Further aviation development also is recommended in the establishment of aerial centers.

CURRENT NAVAL AND PROFESSIONAL PAPERS

"An Introduction to the Helecopter," by Alexander Klemin. *Mechanical Engineering*, Mid.—November, 1924.

"Fuel Oil Burning in the United States Navy," by Lieutenant Commander H. G. Donald, U. S. N. *Mechanical Engineering*, Mid.—November, 1924.

Marine Turbine Reduction Gearing. From the Eleventh Thomas Hawksley Lecture, entitled "The Trend of Development of Marine Propelling Machinery," delivered by Engineer Vice-Admiral Sir George G. Goodwin before Institute of Mechanical Engineers. *The Engineer*, 14 November, 1924.

"Aeronautics in Naval Architecture," by Commander J. C. Hunsakes (CC), U. S. N. Abstract of paper read at meeting of the Society of Naval Architects and Marine Engineers.

"The Coast Defenses of San Francisco," by Sidney Ballou, Lieutenant Commander, U. S. N. R. *The Coast Artillery Journal*, December, 1924.

"Twenty-five Year's Progress in Explosives," by Charles L. Reese, Ph.D., Sc.D. *Journal of the Franklin Institute*.

"Singapore," by Captain R. J. Wilkinson, O. B. E., 2nd Bombay Pioneers, Indian Army. *Journal of the Royal United Service Institution*, November, 1924.

"Infantry and Coast Defense," by Colonel H. S. Wagner. *Infantry Journal*, December, 1924.

NOTES ON INTERNATIONAL AFFAIRS

FROM NOVEMBER 23 TO DECEMBER 23

PREPARED BY

PROFESSOR ALLAN WESTCOTT, U. S. NAVAL ACADEMY

GREAT BRITAIN

BRITISH TERMS ENFORCED IN EGYPT.—Egypt, in its reply to the twenty-four hour ultimatum after the murder of Sir Lee Stack, agreed to apologize and pay at once the £500,000 indemnity, but argued that the other demands were matters of diplomatic discussion. Lord Allenby, in a brief reply, indicated that the evacuation of Egyptian troops from the Sudan, extension of the Sudan irrigated area, and other measures stipulated in the ultimatum would at once be put into effect by his government. In the evacuation of Egyptian troops, about 200 Sudanese soldiers rebelled and attacked the military hospital at Khartum, but were suppressed, other Sudanese troops assisting the British.

Following the payment of the indemnity on November 24, the Egyptian Premier, Zaghlul Pasha, resigned, and was succeeded by Ziwar Pasha, president of the Senate. The British on the same date took over the customs at Alexandria. The new Egyptian Government accepted participation in the conduct of Egyptian affairs by British judicial, financial and public security representatives, in accordance with British requirements.

After a stormy scene in Parliament when Zaghlul Pasha announced his resignation, the Parliament drafted a protest to the parliaments of all powers and to the League of Nations denouncing the British action. The protest declared that if the League did not act in the matter, it would be regarded by all eastern peoples as the mere tool of England, and they would turn toward the Bolsheviki. Further it asserted that the British note of December 4, warning all nations against interference in Egypt, was contrary to Article XII of the League Covenant, which made it the "friendly right" of any nation to call the attention of the League Assembly or Council to any situation threatening international peace.

Since the protest came from the Egyptian Parliament and not from the government, no action could be taken by the League, unless some member of the League should make the request; and in view of England's warning, such a request was not likely to be made.

MILD SOVIET REPLY TO TREATY REJECTION.—The Soviet Government on November 28 replied in a tone of mild regret to the British note of

a week earlier rejecting the Russian treaties. Through Christian Rakovsky, Chargé d'Affaires in London, it also reiterated that the alleged Zinovieff propaganda letter was a forgery, presumably by Russian counter revolutionary societies, and insisted upon arbitration as the only proper solution. British Cabinet Officers, however, declared in public statements that there was no shadow of doubt about the authenticity of the letter in question.

UNITED STATES

TRIANGULAR PARLEY ON GUN RANGES.—A statement was issued from the White House on December 20 to the effect that, several weeks before, the British Government had proposed a conference or exchange of notes between Washington, London, and Tokio to obtain an interpretation of the Arms Conference Treaty insofar as it related to gun ranges of capital ships; that exchanges had been in progress for some time; and that a satisfactory outcome was in prospect. The American position, as stated in notes on the subject, is understood to be that the question of elevation of gun turrets is largely a domestic question to be dealt with by Congress in making appropriations, though the British protest might well be taken into account by Congress in meeting the issue.

PAYMENT OF AMERICAN WAR CLAIMS.—In November the United States Government presented to the Allied Powers a proposal that the American damages against Germany, as awarded by the Mixed Claims Commission under the German-American Peace Treaty, and amounting to about $300,000,000, should be paid out of what the Reparation Commission received under the Dawes Plan. This proposal France, Italy and Belgium accepted as "justifiable in equity though not in legal right." Great Britain, however, in a note of December 9, raised objections, on the ground that the United States, having made a separate treaty, had no right to money obtained under the general provisions of the Treaty of Versailles, and, further, if the United States wished to make use of the machinery of the Reparation Commission in collecting its claims, it should submit these claims, like those of the British and French, to the commission for scaling down.

A full reply was made to the British note, in which it was made clear that the United States was quite willing to spread payments over a period of years, just as the Rhine Army cost payments were spread over ten years. Newspaper reports at the close of December indicated that the final British reply would be favorable. Distribution of payments from Germany was to be considered by a conference of Allied ministers on January 6.

FRENCH DEBT DISCUSSION RENEWED.—Tentative proposals for further discussion of a French debt arrangement were made by the French ambassador in Washington in November and December, but no action was taken. The British position in the matter was made clear when Chancellor of

the Exchequer Winston Churchill stated in Parliament on December 10 that "any payment made by our debtors in Europe to their creditors in the United States should be accompanied simultaneously *pari passu* by payments to Great Britain." At the same time he declared that the Anglo-American debt settlement was an established policy, beyond further discussion. As regards the French debt to England; it was later announced that the present government would renew Bonar Law's offer of a two-thirds reduction, and that France might, therefore, attempt this settlement first.

GERMANY

RESULTS OF DECEMBER ELECTIONS.—The German elections of December 7 resulted in a strengthening of the more moderate parties, the Nationals gaining at the expense of the extreme Chauvinist party, led by Ludendorff, and the Socialists gaining decidedly at the expense of the more extreme parties of the Left. Other middle parties, including Stresemann's People's party and the Democrats and Clericals also made gains. Results as given out on December 8 were as follows:

	Seats
Social Democrats	129
Nationalists	104
Centrists (Clericals)	67
People's Party	50
Communists	44
Democrats	31
Bavarian People's Party	19
Extreme Nationalists	14
Economic Party	10
Farmers' Party	4
Hanoverians	4
Other parties	8
Total	484

The Marx Cabinet, on December 11, declared its intention to resign. From the results of the election, it was anticipated that the new ministry would ultimately be a coalition of the middle parties, as before. Efforts were made, however, by Foreign Minister Stresemann of the People's party to form a cabinet by including Nationalist members and excluding Socialists. Following his failure (owing to clerical opposition to the Nationalists) President Ebert called upon former Chancellor Marx, but it was announced on December 18 that he also had been unable to organize a new ministry.

GERMANY AND THE LEAGUE.—It was announced on December 22 that Germany had sent a note to the League of Nations touching on the entry of Germany into the league, but insisting that Germany should be free to decide how far she should participate in activities of the league against any state involved in an international conflict, in view of Germany's limited military forces and her exposed position. Germany had previously

sent notes to the powers asking their attitude toward giving Germany a place in the League Council, and had received favorable replies.

LEAGUE OF NATIONS

No Disarmament Conference in June.—At the session of the League Council in Rome beginning December 8, Austin Chamberlain, British Foreign Minister, won consent for his proposal that all discussion of the Geneva Peace Protocol be postponed until the next meeting of the Council in March. In so doing the British delegate expressed the continued adherence of his government to the cause of armament limitation, and declared that the purpose of the postponement was solely to enable the new British Ministry to study carefully the machinery of the new proposal.

It was understood that in March the British would offer several amendments, the chief difficulties of the protocol from the British standpoint being: (1) the absence of the United States from the league and the new problems which the protocol would create from this point of view; (2) the objection, especially of the British Dominions, to the Japanese amendment concerning domestic questions; and (3) the question to what extent acceptance of the protocol would tend to render permanent the *"status quo"* in international relations, even if this *status quo* were unsatisfactory and a just cause for war.

Since no amendments to the protocol could be made except by a vote of the League Assembly which meets in September, it was taken for granted that the proposed general conference on limitation of armaments would not be held next June.

Arms Traffic Conference in May.—At the December meeting of the League Council it was decided to set the Arms Traffic Conference for May 4 next. A reply had been received from Secretary Hughes signifying that the United States Government would take part and that a date in April or May would be acceptable. In general terms the purpose of the conference will be to reach agreement upon a convention for the control, with respect to international trade, of traffic in arms, munitions and instruments of war. A committee, upon which the United States has been represented, has for some time been engaged in preparing a draft of such a convention.

ITALY AND THE MEDITERRANEAN

Mussolini Plans New Election.—Prime Minister Mussolini announced on December 20 that he would call upon Parliament in January to pass a bill providing for a return to the old election law, and it was generally assumed that this indicated his intention to call for another election next October. The law in force at the election last year provided that the party receiving the most votes, even though not more than half, should have at least two-thirds of the members of the Chamber. By a return to the old law, Mussolini signifies his willingness to meet his opponents

on their own terms, and to try to disprove their statement that he is not supported by a majority of the country.

CAMPAIGN IN TRIPOLI.—It was announced on November 25 that the Italian forces engaged in reconquest of the territory in Tripoli, necessarily abandoned in 1915, had advanced a step by the occupation of Syrte, which, by its position near the sea, had been a chief center for the smuggling of arms to the interior. This, according to the *Communique*, "reestablishes Italian authority along the whole seaboard up to the desert."

SPANISH RETREAT IN MOROCCO.—On December 12 it was announced that the retirement of Spanish forces from Xauen to Tetuan had been completed. About 250 small positions had been abandoned. The new policy adopted by General Primo di Rivera is to prevent intercourse with the warring tribes and establish a strong fortified line that will separate them from the tribes of the pacified areas near the coast. The whole interior of the western part of the Spanish zone will be left to the rebels, who may now turn their attention to the French. On December 22 it was reported that the Spanish would not be able to hold Tetuan.

In view of Spanish reverses, the French Government presented inquiries to Spain regarding her intention and capacity to preserve order in the Spanish zone, for if intervention should become necessary, France would prefer to enter upon it before the situation should draw in other powers. It is the position of France that her status in Morocco would justify taking over the Spanish zone if conditions there called for such a measure.

REBELLION IN ALBANIA.—An insurrection in Albania, led by former Premier Ahmed Zogue, reached such proportions in December that a general mobilization of the government forces was ordered. The Premier of Albania, Bishop Noli, addressed a protest to the League of Nations to the effect that the government of Jugo-Slavia was allowing and encouraging the organization of this insurrection, and a note was also sent to Jugo-Slavia which the latter declared unacceptable and unjustified. The Jugo-Slav Minister in Washington stated to the press that his government was in no way responsible for the trouble in Albania, which was largely a product of Soviet propaganda. The Noli Government was subsequently overthrown.

FAR EAST

RUSSIA AND JAPAN.—In a statement at Moscow on November 28, Premier Rykoff of the Soviet Government declared that the friendly agreement between Russia and China, annulling all old treaties unfavorable to the Peking Government, constituted a genuine triumph. He stated further that negotiations with Japan were proceeding favorably, it appearing that Japan would consent to evacuate Sakhalin upon concession of about four per cent of the total coal and oil areas to Japanese exploitation.

PROVISIONAL GOVERNMENT IN CHINA RECOGNIZED.—A joint note of the envoys of the chief powers on December 8 extended recognition to the provisional government established at Peking in November with the Anfu leader Tuan Chi-jui at its head.

Both Feng Yu-hsiang, the "Christian general" who led the overthrow of the former government, and Chang Tso-lin, the Manchurian War lord, declared their intention to step into the background and accept the control of the new régime, though Chang retired only as far as Tienstin with an army of about 50,000, and gave about 40,000 more troops for a campaign in the south against the deposed military governor of Kiang-su.

In the meantime, Sun Yat Sen, the Canton leader who had come up to join the forces at Peking, was held up at Tientsin.

BOOK REVIEWS

FAMOUS AMERICAN NAVAL OFFICERS—By Charles Lee Lewis, Assistant Professor, U. S. Naval Academy. Illustrated. L. C. Page and Company, Boston, 1924. $2.00.

Primarily written for youthful Americans yet of such a character that the oldest officer as well as the youngest recruit will find it stimulatingly interesting, this book should be read by every midshipman and copies should be found in every ship's library. It is a book that one enjoys re-reading. In these days of the sophisticated American youth such examples of self-sacrificing patriotism, accomplished through the loftiest ideals of courage, honor, chivalry and service, should be familiar to every school child throughout the Union. It is especially valuable in its historical perspective, for the plain unvarnished facts are not garbled to present a better picture. Excellent quotations from old songs and poems give a touch of the time to each sketch. The clear, smooth, pictureful style makes it easy to read, and the happy selection of interesting details stirs the reader to learn more of the lives and characters of such naval heroes. The book stands out as the best in its field.

In making the choice of the twelve famous American naval officers, the author felt that not mere "achievements in battle" but "the work done by naval officers in the different fields of science, invention, exploration, historical research, and diplomacy" should govern the selection. The selections as a whole have been well made, though there have been omitted officers whose claims to recognition seem just as strong. In the sketch of John Paul Jones, the clear and comprehensive analysis of both his personal and professional character, with the striking picture of his early life, makes an unusually coherent and pointed biography. The effectiveness of the analysis is greatly heightened by the discussion of the two questions: (1) "Was he a pirate?" (2) Was he an "adventurer without any feeling of patriotism for America"? To the latter his biographer replies in the negative. To the former he replies in the words of Jones's own refutation: "Having been alluded to as a pirate, I looked up the authoritative definitions of that epithet, and found among them 'Pirate—one who is at war with mankind.' I am holding a regular commission as a naval officer in an honorable service and making war only upon the armed enemies of my country. England is at war with America, France, Holland and Spain and engaged in provoking war in several colonies, and it seems to me that she is the pirate,

not I." Jones had two marked traits: proneness to brood over misfortunes, and indomitable perseverance to gain his just deserts.

Decatur, who was "more universally beloved during his lifetime" than any other American naval hero, showed not only "extraordinary talent as a military man and as a diplomatist" but also "singular ability as an administrator." "He was always the gallant and chivalrous leader; his men followed him as a matter of course. Moreover, his personal gallantry and chivalrous spirit gave a heroic tone to our Navy, which has come down as a heritage of inestimable value to this very day. Those who knew him well bear witness to the fact that he seemed to cast a strange spell over his seamen, even at first sight, and his generous and humane treatment of them only strengthened the attachment to him, which his personal magnetism had produced. He possessed the happy art of governing his men by their affections rather than by their fears."

The author, in his portrayal of Hull, has given us an interesting and vivid picture of stirring action and events, with much appreciation of human analysis. Hull's action at Portsmouth, England, when he refused to be bullied into submission by two British frigates, gives us much true light on the real character of our early officers—a character which, unfortunately, through the uncritical stressing in our school histories of the *Leopard-Chesapeake* affair, is by no means adequately appreciated. An interesting and amusing instance of British indignation over the defeat of the *Guerriere* by the *Constitution* discloses the keen reaction experienced by some of the British officers. "When the loss of the *Guerriere* was made known to a group of seventy or eighty English officers at Plymouth, a most extraordinary scene was enacted. One who was present, at table with the officers, furnished these details: 'The storm of fury, the broken glasses, curses, imprecations and tossing chairs were but the evidences that British pride was indelibly touched, and in the fury of rage all physical digestion was at an end.'" Hull's biography, which is one of the most effective of the twelve, strikingly epitomizes his worth with the final comment—"for was not he the first to break the spell of British supremacy on the high seas?"

Professor Lewis's description of Porter, whose very spirit seems reflected from the pages of the sketch, has been drawn with such life-like strokes that a character, which in the average naval history seems stressed out of all proportion to its historical significance, now takes on added interest. His life is considered as a "romantic drama of five acts," from his irresistible call to the sea to his appointment as American minister at Constantinople. His resignation from the Navy, in consequence of the unjust treatment meted out to him as a result of the Fajardo affair, ended a naval career which had always been marked by being in the thick of whatever was going on. The author's keen sympathy for Porter has led him into one of the few errors of judgment, that the thoughtful reader may criticize, when he makes a facetious slap at republics. This, with the very last sentence in the book, has no place in such a biography.

The story of Macdonough seems rather thin in comparison to the sketches of Porter and Hull, though what is presented is well done, especially the selection of the closing quotation. The story of Farragut, too, is not as well sustained as the others; and that of Sims, though intensely interesting in regard to his early career and his faculty for constructive and beneficial criticism, becomes, during the World War period, an incomplete and uncomprehensive narrative of rather dry details.

In tracing the career of Oliver Hazard Perry we see the importance of merchant service to our early officers. Many, too, were brought up in a sea atmosphere, and a great number had ancestors who had suffered in the old British prison ship *Jersey*. This last circumstance seemed to be an additional incentive to fight against England in the War of 1812, at least in the case of Porter. The account of the battle of Lake Erie is unusually clear and the significance of the psychological effect of the victory upon the English is suggested by the comment, "never before, since England had created a navy, had an entire British fleet or squadron been captured."

It is not so much the outstanding achievements of M. C. Perry and Dewey, which were accomplished in the Far East and which are generally well known and appreciated, but rather their less conspicuous work that is of especial interest to the reader. Dewey's professional qualifications are seen in his transformation of the *Colorado*, during the Civil War, from an unhappy to a happy ship and in his sense of mortification at being ordered to the China station, via the Mediterranean, in 1882, in the old tub *Juniata*, when he said: "I was going in a relic of a past epoch of naval warfare, which you would have expected to see flying the flag of some tenth-rate power. She was as much out of date as the stage-coach. While Europe was building armored battleships and fast cruisers, we were making no additions to our Navy. Italy, Spain, and Holland were each stronger on the sea than the United States." To correct this deplorable state of things he did much. Perry's services, other than the opening of Japan, make a most remarkable list. Professor Lewis enumerates the following as some of the distinctive things that he accomplished: "He chose the location of the first free black settlement in Liberia; he was, to the end of his life, one of the leading educators of the United Sates Navy; he was the father of our steam Navy; he first demonstrated the efficiency of the ram as a weapon of offense in naval warfare; he founded the naval apprenticeship system, and the naval brigade; he was an active instrument in assisting to extirpate the foreign slave trade on the West Coast of Africa; his methods helped to remove dueling, the grog ration, and flogging out of the Navy; and he commanded, in 1847, the largest squadron which, up to that date, had ever assembled under the American flag, in the Gulf of Mexico, and this fleet, under his command, materially aided the army in its rapid subjugation of Mexico." Perry's life was, indeed, filled with constructive accomplishments.

The two remaining officers that complete the selected group both became

famous through their research and exploration in unknown realms; Mahan in the realm of historical research, specializing in the field of the history and philosophy of sea power, and Peary in the realm of the frozen North, specializing in the field of progressive adaptability to the Arctic conditions, through the development of the "Peary System." Both became the recognized leaders in their respective fields and their accomplishments have not been equalled. Mahan's widespread influence upon the development of modern navies, especially upon Germany, has had a great effect upon the history of the world. He, himself, it seems, worried over the character of the German reaction to his philosophy of sea power. Peary's chief contribution, outside of his final achievement, is found in the fundamental basis of the "Peary System,"—the constant and untiring study of the problem in hand, accompanied by the patient willingness to sacrifice speed for effective solution.

H. F. S.

DYNAMO ELECTRIC MACHINERY—By Erich Hausmann, E.E., Sc.D. D. Van Nostrand Company, New York. $4.50.

This book constitutes a revision of two separate volumes, Direct Current Machines, and Alternating Current Machines, written in 1900 and 1902, jointly by Dr. Samuel Sheldon and Dr. Erich Hausmann, the present author, who is professor of physics and professor of electrical communication at the Polytechnic Institute of Brooklyn, president of the New York Electrical Society, Fellow of the A.I.E.E.

The author has successfully combined the material of the previous volumes with modern developments and has produced in a single compact volume the essential features of Dynamo Electric Machinery. The subdivisions are fewer than sometimes made but appear to be an advantage in that the material is better centralized and treated from a more general viewpoint.

The illustrations are numerous, well chosen, and include cuts of modern machines, clear typical wiring digrams, and a few well drawn characteristic curves for various machines and electrical appliances. The subject of Inductance and Capacity and its use in electrical circuits is especially well treated. A limited mathematical treatment is given to this subject sufficient to show the principles underlying the calculation of these properties in a circuit.

Several pages are devoted to wave form (a subject which is usually passed over in a single paragraph) with both mathematical and graphical treatment. The chapter on Transformers is unusually complete with illustrations of a large number of commercial types, both as a unit, disassembled, and in cross section. The location of this chapter before the chapter on Alternators is, however, of questionable value, but was evidently done to enable the study of A. C. motors to follow directly after that on Alternators.

The book is divided approximately as follows: Elements of Electricity and Magnetism, one tenth; Direct Current Machinery, three tenths; Elements of A. C., two tenths; Alternating Current Machinery, three tenths, and Conversion, one tenth. The book is thus seen to be a textbook more largely of A. C. than D. C. and treating the subject more fully from a practical standpoint than from a theoretical one. As the title suggests, the subjects of batteries, communication and electrostatics are not included.

D. G. H.

SECRETARY'S NOTES

Membership

Present Membership, 4211. Changes since last report: New Members, 7. Resignations, 41. Deaths, 1. Dropped, 2. Total Decrease, 37.

New members joining since last report:

Johnson, E. P., Lieut., U.S.N.
Colialexis, A., Captain, G.N.
Vila, E., Ensign, A.N.
Carranza, J. M., Lieut., A.N.
Field, R. S., Lieut. Comdr., U.S.N.
Gulliver, L. J., Comdr., U.S.N.
Thomas, J. D., Midn., U.S.N.

Resignation of Secretary-Treasurer

The resignation of Commander H. G. S. Wallace, U. S. Navy, as Secretary-Treasurer, due to prospective early detachment, was accepted with regret. Captain H. A. Baldridge, U. S. Navy, was elected to succeed Commander Wallace.

Articles

The Institute desires articles of interest to all branches of the service, including the reserve force. Non-members as well as members may submit articles, and authors receive due compensation for articles published. Compact, well digested articles are more likely to be accepted for early publication. In accepting articles for publication, the Institute reserves the right to have such articles revised or rearranged, where necessary, in order to bring them up to the required standard of articles published in the PROCEEDINGS—the cost, if any, to be deducted from the compensation due the author.

Reprints of Articles

Twenty copies of reprints are furnished authors free of charge. Additional copies to the number desired will be furnished at author's expense, provided request is made before going to press.

Discussions

Discussion of articles published in the PROCEEDINGS is cordially invited. Discussions accepted for publication are paid for at approximately one-half the rate for original articles.

Book Reviews

As soon as practicable after the publication of books on subjects of professional interest, the Institute aims to publish authoritative reviews of them.

Address of Members

In the past, many errors have resulted from the habit of changing an officer's address as soon as his transfer orders are published in the papers. No change will be made in the future except upon receipt of notification by the member concerned. Reliance upon the former method may, in extreme cases, mean a delay of almost four months. To insure the prompt delivery of the PROCEEDINGS and other communications from the U. S. Naval Institute, it is essential that members and subscribers *notify the Secretary-Treasurer without delay of every change of address.* No responsibility can be accepted for failure to receive the PROCEEDINGS, where members fail to comply with this rule. Changes of address should reach the Institute by the 25th of the month, to be effective for the issue of the PROCEEDINGS of the following month.

Coupons for Applications

For the convenience of members making application for membership or for subscription, or informing the Institute of changes of address, a number of blank forms will be found elsewhere in this issue. It is hoped that members will take full advantage of these in order to reduce clerical work of all concerned.

H. A. BALDRIDGE,
Captain, U. S. Navy, Secretary-Treasurer.